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Contents

Rediscovering James Mark Baldwin <i>Anna Rita Calandrini, Giuseppina Marsico</i>	5
Students' and teachers' emotions. A study with children's drawings <i>Anna Silvia Bombi, Eleonora Cannoni, Francesco Galli, Anna Di Norcia</i>	13
Addressing maladaptive interpersonal schemas, poor metacognition and maladaptive coping strategies in Avoidant Personality Disorder: The role of experiential techniques <i>Virginia Valentino, Antonella Centonze, Felix Inchausti, Angus MacBeth, Raffaele Popolo, Paolo Ottavi, Kjell-Einar Zahl, Giancarlo Dimaggio</i>	19
A pilot study on couple relationships and cardiac disease: The role of alexithymia and attachment in the course of myocardial infarction <i>Michela Di Trani, Cinzia Di Monte, Alessia Renzi, Paul S. Greenman, Federica Barbieri, Francesco Dentale, Valérie Beaudoin, Luigi Solano</i>	29
Helicopter Mothers and Helicopter Fathers: Italian Adaptation and Validation of the Helicopter Parenting Instrument <i>Jessica Pistella, Flavia Izzo, Stefano Isolani, Salvatore Ioverno, Roberto Baiocco</i>	37
The Role of Need for Affect and Need for Cognition in Self-Evaluation <i>Antonio Aquino, Geoffrey Haddock, Gregory R. Maio, Francesca Romana Alparone</i>	47



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Rediscovering James Mark Baldwin

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Abstract

James Mark Baldwin played a significant role in the birth of the American experimental psychology at the end of the 19th century. Known for his evolutionary theory that takes his name (The “Baldwin effect”), as well as for the significant influence he exerted on the more famous Piaget in the epistemological field, Baldwin represents a controversial, long-forgotten and only recently rediscovered intellectual figure. After taking his first steps in the field of Scottish mental philosophy, the encounter with German experimentalism led him to apply the scientific method to the study of the development of the child’s mind. Baldwin is among the first scientists to identify the profound link between the evolution of mental faculties and phylogenesis. During the last season of his intellectual life, he devoted himself to the creation of evolutionary epistemology. The present article, after retracing the main stages of his theory illustrates organic selection as a mechanism underlying the ontogenetic and phylogenetic development of the human mind, the laws of habit and accommodation, the role of imitation and the social transmission of “intelligent” functions. This study ends with a reflection on Baldwin’s influence on evolutionary studies during the 20th century, and his oblivion and “rediscoveries”.

Keywords: Baldwin; Evolution; Imitation; Mental development; Piaget.

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Introduction

James Mark Baldwin (1861-1934) belongs to the first generation of American “experimenters” who contributed to the transformation of American psychology from intuitionism to “new scientific experimentalism”, which took place towards the end of the 19th century.

The rapidly changing American society of the 1880s and 1890s, which saw the presence, among others, of figures such as George Herbert Mead and John Dewey, inspired by the intellectual guide of Charles Sanders Peirce and William James, provided fertile ground for the development of Baldwin's innovative work. In those times, new ideas emerged that went beyond the classic patterns of thinking and believing. At the same time, people experienced new ways of living in urban environments and witnessed the increase in immigration and the consequent use in everyday life of a plurality of languages. America was turning into a melting pot of new ideas, and the younger generation of intellectuals played an active role in these change processes. (Valsiner & van der Veer, 2000). However, a distinctive feature that differentiated Baldwin from his colleagues was the profound link with traditional mental philosophy, inherited from his mentor James McCosh (1811-1894), which led him to the study of Darwinian natural selection and Wilhelm Wundt's (1832-1920) new experimental psychology. Taking a cue from the classification proposed by Robert Wozniak (Wozniak, 1982), it is possible to recognize in Baldwin's theory three distinct phases, which correspond to radically different works: (1) the first phase, clearly based on mental philosophy, which characterized him until 1889, (2) a second phase, in which he engaged in the studies of child and developmental psychology, corresponding to the years 1889-1903, and finally (3) a third phase mainly dedicated to the construction of evolutionary epistemology in the years 1903-1915. As Wozniak himself pointed out, an attentive analysis of Baldwin's scientific production shows a constant “synthetic” effort in the evolution of his thought as he ambitiously attempted to resolve the contradictions emerging from the clash between the old and the new psychology, philosophy and science, internal description and external experimentation, and reason and material reality (Wozniak, 1982).

Baldwin was the author of the first systematic and psychological studies on child behaviour that led him to overcome the pre-established coordination between mind and body inspired by the Scottish spiritualism. He described intellectual development in the individual as a process in continuous evolution, which is carried out through mechanisms of assimilation and cognitive accommodation. Baldwin was the first to introduce the “biosocial” theory of individual adaptation, to highlight the need for a joint study of the child's intellectual development and the evolution of the mind in the race, and one of the first scholars to correlate ontogenetic development with the phylogenetic one, with special focus on its socio-cultural implications, the imitative process and social heritage.

Baldwin's psycho-genetic approach to the problem of individual development was based on the systematic observation of the child during his early stages of development, the dialectic of assimilation and accommodation and the notion of

development. Such an approach allows us to consider Baldwin a precursor of the psychology of cognitive development of Jean Piaget (1896-1980) and an important source of inspiration for other great European psychologists including Pierre Janet (1859-1947), Lev Vygotsky (1896-1934) and Lawrence Kohlberg (1927-1987). Baldwin's name is often associated with studies on the evolution of the mind, particularly since 1953, when George Simpson used the expression “Baldwin effect” to indicate that evolutionary mechanism by which an adaptive ontogenetic change is subject to natural selection (Simpson, 1953). Recent progress in the field of evolutionary epistemology, as well as the latest studies on evolution in psychology and biology, have favoured a “rediscovery” of Baldwin's theories (Continenza, 1982; Morgan & Harris, 2015; Pertile, 2019). The interest in the so-called “Baldwin effect” reflects the increasing attention to the relationship between behaviour and evolution and the recognition by today's scientific community of the possibility that selection is the result not only of the action of the environment but rather of the dialectical-constructive interaction of the organism and the environment (Sánchez & Loredó, 2007).

However, despite his remarkable popularity with his contemporaries and his merits in having anticipated concepts and mechanisms that later became points of reference in developmental psychology and genetic epistemology, Baldwin and his theories have been “forgotten” for over half a century (Broughton, 1981; Loredó Narciandi, 1999; Obiols & Berrios, 2009), and only in recent decades, they have been gradually brought back from their temporary oblivion. As an example, in his *A history of experimental psychology*, Boring dismissed Baldwin's intellectual achievements, simply noting that “*Baldwin's felicitous literary style, surpassed only by James, gave a transient vitality to his ideas; but his effect was not permanent*” (“Boring, 1929, p. 518”). There have been numerous hypotheses on the causes that determined what could be called real ostracism against this American psychologist. According to Mueller (1976) and Russell (1978), one of the causes lies in his opposition to the positivist approach just at the moment when the latter was fully recognised in psychology. Another motivation was his attempt to consolidate the relationship between philosophy and psychology just when G. Stanley Hall (1895) and others successfully attempted to free psychology from the authority of metaphysics and epistemology (Broughton & Freeman-Moir, 1982). A third factor concerns the shifting of the attention of the intellectuals of the time from Baldwin's symbolic interactionism to the more pragmatic and less Hegelian one of George Mead (Mead, 1934). To these factors must be added his lack of followers as well as a style considered excessively speculative, which certainly did not contribute to the diffusion of his ideas (Cahan, 1984). In 1908, at the height of his academic career, when he had been recently elected to preside over the upcoming International Congress of Psychology, Baldwin was arrested in a brothel in Baltimore. Following this event, he was forced to resign from his chair of Philosophy and Psychology at Johns Hopkins University and since then has been generally “forgotten” by his American colleagues. In addition to the scientific-intellectual reasons, it is not possible to overlook the effects of the Baltimore scandal, which forced him to leave the United States and relegated him

first to Mexico and then to France, thus ending his academic and scientific career in advance. In support of this vision, Richards underlines the moral and scientific ostracism suffered by Baldwin by stating:

"Baldwin's colleagues implicitly judged him to have breached that admixture of professional and personal principles. And a scientist, perceived to have sinned against norms of professional honesty and integrity, must struggle against enormous odds to have his work henceforth taken seriously." (Richards, 1987, p.503).

The purpose of this article is to provide a general overview of J. M. Baldwin's figure as an intellectual, psychologist and researcher, with particular attention to his main contributions in the field of developmental psychology. The article is structured as follows: a first section describes the essential stages of Baldwin's *curriculum vitae* from his academic training to his teaching career, as the author of relevant scientific works and editor of important psychology journals, including the stages and fundamental works that characterized the development of his thought; a second section describes Baldwin's evolutionary theory on the interaction between the ontogenesis and phylogeny processes, the imitative reaction and the social implications in mental development; the last section is finally dedicated to the influence that Baldwin had on developmental psychology, genetic epistemology and, above all, on studies about evolution during the twentieth century.

1. Biography and evolution of the thought of J. M. Baldwin

James Mark Baldwin was born in Columbia, South Carolina (USA) on January 12, 1861. He attended the faculty of theology at Princeton University where he graduated on June 18, 1884. In those years, thanks to a profound interaction with Presbyterian Minister James McCosh, president of Princeton University, Baldwin became greatly interested in philosophy. In McCosh's (1872) vision, the human mind is the product of a creation of God, endowed with innate and universal tendencies: *intuitions*. Through them, the mind can perceive the world as it really is. For McCosh mind and reality exist in a pre-established harmony (or coordination), whereby scientific progress cannot contradict religious truth since both derive from God. By virtue of this principle, McCosh opens Princeton's doors to Charles Darwin's biological evolution and Wilhelm Wundt's new experimental psychology.

1.1 - Integration between spiritualism and experimental psychology

Awarded with a scholarship, Baldwin had the opportunity to study for a year in Germany, where he got in touch with the new experimental psychology by following Wilhelm Wundt's lessons for a semester; also in Germany, he followed a seminar held by Friedrich Paulsen (1846-1908) on Spinoza (1632-1677) that deeply impressed him. Spinoza's pantheism provided him with a compelling justification for the pre-established coordination between the mind and the material reality derived from James McCosh's intuitive realism.

In 1885, Baldwin returned to Princeton where he devoted himself to teaching French and German. Dissatisfied with his knowledge of the French language (Baldwin, 1926), Baldwin delved into the reading of French authors's works, particularly passionate about a work by Ribot (1839-1916) entitled *German Psychology of Today* that opens the way for the "new" experimental psychology. The translation of Ribot's work represents the starting point in the search for a form of integration between McCosh's descriptive introspectionism and the new experimental psychology of the German tradition up to Wundt. It is from the same period, *Contemporary Philosophy in France*, in which Baldwin focuses on French spiritualism, claiming that *the time has come to combine science with spiritualism, through the use of its methods, its principles, and its indisputable conclusions. ... Philosophy must bend to experience. Spiritualism must bend to scientific methods.* (Baldwin, 1887a, pp. 138-139).

Also in 1887 Baldwin published *The Postulates of a Physiological Psychology* (Baldwin, 1887b), a work that summarizes all the influences Baldwin was subjected to during those years and whose relevance lies in its providing a general picture of his attempt to integrate Wundt's experimental psychology with McCosh's inductive mental science. Baldwin, in fact, defines experimental physiological psychology as the science of internal and external psychic phenomena, since there is an invariable relationship between mind and body, between consciousness and the unconscious.

In 1888 Baldwin obtained a PhD at Princeton by discussing a thesis against Spinoza's materialism under McCosh's guidance. The first volume of *Handbook of Psychology* with the subheading *Senses and Intellect* (Baldwin, 1889), is also from this period. It represents a complete form of integration between the Scottish mental philosophy and experimental psychology.

1.2 - Evolutionary psychology

The success of *Senses and intellect* allowed him to obtain the chair of Logic and Metaphysics at the University of Toronto. He remained in Toronto until 1893 and founded the first psychology laboratory in Canada. Meanwhile, in 1889 he married Helen Heyes Green, with whom he had two daughters: Helen and Elizabeth. His experience as a father was one of the reasons for his passage from mental philosophy to experimental evolutionary psychology. In fact, in his role as a father, Baldwin had the opportunity to conduct a systematic observation of the child during his early development stages, coming to grasp the initial immaturity and the progressive development of mental skills that are perfected day after day through continuous interaction with the surrounding reality. This new vision resulted in Baldwin's distancing from Scottish mental philosophy as the coordination between reason and reality cannot be predetermined but is rather the result of an evolutionary process. In 1891 Baldwin published the second volume of the *Handbook of Psychology* subheaded *Feeling and Will* (Baldwin, 1891), in which the concepts of habit and accommodation appeared for the first time. During the same period, Baldwin elaborated a theory of mind development

in the child based on the regulation of habits and their arrangement in voluntary actions.

After the Canadian experience, in 1893 Baldwin returned to Princeton to fill the position of professor of Psychology. There he established a new psychology laboratory and worked on his most important contributions in the field of evolutionary psychology. Among his most relevant works of this period stand out *Mental Development in the Child and the Race* (Baldwin, 1895a) and *Social and Ethical Interpretations in Mental Development* (Baldwin, 1897). In 1896 in the article entitled *A new factor in evolution*, Baldwin describes a mechanism through which the acquired arrangements influence the evolution of a species (Baldwin, 1896a). This factor, at the time unnamed, will be renamed the “Baldwin effect” (Simpson, 1953).

In these works, Baldwin underlines the analogy between individual growth (ontogenesis) and the evolution of a species (phylogeny). This analogy consists in the fact that the adaptations acquired in the ontogenesis of an individual are transmitted to future generations, thus shortening the ontogenetic process (Baldwin, 1896a). Baldwin believed that the intellectual adaptation of an individual is based on the natural tendency of an organism to seek and preserve the situations that induce pleasure and to divert the experiences that cause pain. This mechanism, which Baldwin calls the law of *dynamogenesis*, is governed by the principles of habit and accommodation. The intellectual development of the individual takes the form of an imitative action in which the stimulus initiates a motor process that tends to reproduce this stimulus and, through it, the motor process itself, according to a circular reaction mechanism (Baldwin, 1895a). The imitative action, however, is not to be understood as the exact repetition of a previous action (because in this case there would be no progress).

On the contrary, it is only through a modified repetition, made possible by the active intervention of reason (conscious imitation), that the organism manages to protect and maintain its vital stimuli. If successful, the variations that cause pleasure or avoid pain are selected in order to allow a better adaptation of the organism. Through this process, which Baldwin calls *organic selection*, the individual develops a growing understanding of the world, or in other words, greater coordination between reason and reality. In the principle of organic selection, therefore, Baldwin once again finds the principle of Scottish intuitive philosophy of coordination between the human mind and material reality.

If in *Mental Development in the Child and the Race* and *A New Factor in Evolution* Baldwin had best expressed his evolutionary theory based on organic selection, in *Social and Ethical Interpretations in Mental Development* he provides an integrated view of his theory on human mind development and that on social adaptation. Based on this concept (Baldwin, 1897), Baldwin maintains that the thought of the individual self is the result of the social and cultural development of the individual, which is realized through the interaction with others. In essence, it no longer makes sense to talk about the Ego without taking into account the Alter, since they are inextricably linked by virtue of their joint growth process, made of conscious imitations, variations and oppositions,

which contribute to the construction of a common body of experiences leading to the formation of the so-called social partner (the *Socius*). In the last decade of the nineteenth century, Baldwin developed his concept on the psychology of development in the child and its connections with the evolution of the mind in the race, which was later collected in a single overall work entitled *Development and Evolution* in 1902 (Baldwin, 1902).

1.3 - Evolutionary epistemology

At the beginning of the new century, however, a fundamental turning point occurred in Baldwin's intellectual path: just as he was working at his most important contribution on evolutionary psychology, he left the field of psychology to devote himself to philosophy. The result of this change will be the construction of an evolutionary epistemology. Among the reasons for this change is Baldwin's observation of the impossibility of experimentally demonstrating his evolutionary theory (Baldwin, 1930). Another factor contributing to its philosophical turn is the re-emergence of epistemological questions in American philosophy in the early 1900s (Baldwin, 1930). The third and final factor that led Baldwin back to philosophy is his activity as editor of the *Dictionary of Philosophy and psychology* (Baldwin, 1905). The close collaboration that Baldwin established in this period with the greatest minds of the time had a decisive role in rekindling his interest in philosophy (Baldwin, 1930).

In 1903 Baldwin moved to Baltimore at Johns Hopkins University as a professor of Philosophy and Psychology. This position allowed him to devote himself entirely to epistemological studies without the worry of supervising the Princeton psychology laboratory:

“The intellectual conditions of Baltimore were altogether favourable to work, and I began to put into shape the material which was to appear in the successive volumes of Genetic Logic.” (Baldwin, 1926, pp. 122-123).

His epistemological studies on the nature and development of thought in relation to reality led to the publication of four volumes between 1906 and 1915: the first three are grouped under a single title *Thought and Things* (Baldwin, 1906; Baldwin, 1908; Baldwin, 1911); the fourth one is titled *Genetic Theory of Reality. They are the outcome of genetic logic as issuing in the aesthetic theory of reality called pancalism* (Baldwin, 1915). Baldwin describes the development of knowledge in the child through evolutionary phases that involve innate abilities and interaction with the environment. He outlines the development of intelligence starting from a *pre-logic* stage, passing through a *quasi-logic* one up to the *logic* one; at a higher level, there is the *hyper-logic* stage, which coincides with the aesthetic experience (Parsons, 1980). Baldwin defines this stage as a form of contemplation in which the immediacy of experience continuously tries to rebuild itself (Baldwin, 1915). This aesthetic experience consists in perceiving reality as an immediately knowable whole. At the height of the evolutionary process of the mind, Baldwin once again focuses on the integration between reason and material reality, a process that characterized his entire research activity.

In 1908 the scandal in which he was involved in Baltimore forced Baldwin to resign and leave the United States. From this moment, Baldwin dedicated himself to teaching in Mexico and especially in France, where he remained for several years. During this period, Baldwin came into contact with prestigious figures of the time including Poincaré (1854-1912), Bergson (1859-1941), Janet and Claparède (1873-1940), met on his frequent trips to Geneva. Right here, despite the oblivion in his homeland, Baldwin's approach on mental development found fertile ground in the young Jean Piaget, who in those years was under the influence of Claparède. Before he died, in Paris on November 8, 1934, at the age of 73, Baldwin worked on an autobiography published in 1926 entitled *Between Two Wars* (Baldwin, 1926).

In addition to his numerous publications, Baldwin had the merit of founding two psychology laboratories (Toronto and Princeton) and reopening the one at Johns Hopkins University in Baltimore. He was also among the founders of three major psychology reviews (Psychological Review, Psychological Bulletin, and Psychological Abstracts).

2. Development and evolution of the mind in Baldwin

2.1 - The Baldwin effect: the organic selection

As we have seen, in the last decade of the nineteenth century Baldwin engaged in studies on the evolution of mental faculties in children and on the close relationship of this type of development with that of the whole species (or race). *A New Factor in Evolution* (Baldwin, 1896a) represents an important step in the elaboration of his integrative theory on the development of the mind. Actually, it has been noted (Simpson, 1953; Continenza, 1982; Morgan & Harris, 2015) that Baldwin's ideas expressed in this article of 1896 are, to some extent, similar to those published independently in the same years by the psychologist CL Morgan (1896) and the biologist HF Osborn (1896), to the point that Baldwin included the works of the two authors in the appendix of his work *Development and Evolution* (Baldwin, 1902). Baldwin's approach focuses on the mechanism adopted by an organism (including humans) to respond - by adapting - to environmental challenges. This process can be interpreted from an ontogenetic point of view as the set of strategies and behaviours that individuals assume to survive during their existence. All these actions and habits produce behavioural modifications called "acquired characters", which Baldwin prefers to call - using a term derived from Osborn (1896) - ontogenetic variations, classifying them in three typologies. On the basis of the agents participating in them, they can be identified as follows: (1) "physical-genetic" agents, (2) "neuro-genetic" agents and finally (3) "psycho-genetic" agents. The latter are of particular interest in Baldwin's vision as they involve "intelligent" functions, such as imitation, maternal teachings, mechanisms of habit and accommodation related to the search for pleasure and the repulsion to pain, experience, and means-end reasoning. Baldwin introduces the expression

"Organic Selection" to indicate the way in which the growth and adaptation of individuals takes place, consisting in the acquisition of new ways or modifications of the adaptive function, together with its influence on the structure. Organic selection intervenes in the private life of the single organism, as it establishes whether the adaptations developed by such individual during its existence are successful, and, therefore, guarantee its survival and reproduction. Since only individuals capable of developing an adaptive behaviour survive, over the generations, what was an ontogenetic conquest of a single organism becomes a congenital ability to adaptation "stored" through heredity. Baldwin's theory can be summarized in the following passage:

"The variations that have been used for ontogenetic adaptation in the previous generation, therefore being maintained, are more widely used in the next generation. "Congenital variations, on the one hand, are kept alive and made effective by their use for adaptations in the life of the individual; and, on the other hand, adaptations become congenital by further progress and refinement of variation in the same lines of function as those which their acquisition by the individual called into play." (Baldwin, 1896a, p. 447).

One of the most significant points of Baldwin's theory of evolution lies in having recognized the importance of adaptability (*plasticity*) compared to the simple heredity of characters. In other words, success in life is guaranteed by the aptitude to experiment with new functions and methods, selecting the winning ones and eliminating the unsuccessful ones:

"Organic selection opens a large sphere for the application of the principle of natural selection among organisms, i.e. selection on the basis of what they do rather than what they are; of the new use they make of their functions rather than of the mere possession of certain congenital features. A premium is set on plasticity and adaptability of function rather than on congenital fixity of structure; and this adaptability reaches its highest levels in the intelligence." (Baldwin, 1902, p. 117).

Here Baldwin's attention focuses on those cases in which organic selection is "addressed" by intelligence:

"Of all the variations that tend towards an adaptation, but inadequate to its complete performance, only those will be supplemented and kept alive which the intelligence ratifies and uses." (Baldwin, 1896b, p. 441).

These considerations imply a proper reflection on conscious imitation and social heredity.

2.2 - Habit, accommodation and conscious imitation

In his more mature vision, Baldwin conceives intellectual development as an adaptation process in which two mechanisms operate simultaneously: habit and accommodation. According to this theory, each organism is endowed with a dynamogenic tendency which makes it to relate to external stimuli by acting on them. Habit involves repetition and retention of useful reactions; in fact, it represents the ability to repeat the actions that produced successful outcomes in the past. Initially, the organism has a congenital susceptibility to act according to modalities defined in relation to certain stimuli, until accommodation takes place, aiming at maintaining contact

with desirable stimuli (vital for the organism and capable of producing sensations of pleasure) and minimizing contact with undesirable ones (deadly or painful). Accommodation is, therefore, the “adaptive” process through which a habit is subjected to change in order to incorporate new possibilities of action. The modification of the action occurs through a “circular” process in which vital stimuli trigger either pleasure or pain; from here a burst of movements is generated, some of which are successful in causing either the repetition of the pleasant stimulus or the inhibition of the painful stimulus. Pleasure and pain are the criteria according to which movements are selected with the aim of making the organism adapt in the best possible way. Circular adaptation serves as a prototype for all higher forms of accommodation, including those involving the action of consciousness.

One of the imitative forms on which Baldwin’s attention focused is a particular type of circular reaction that he called “conscious imitation”. In conscious imitation, the movement *dynamogenically* caused by a stimulus not only tends to maintain contact with the stimulus but also to reproduce it because the imitative action reflects, to a certain extent, the stimulus itself. The reproduction of the stimulus enters consciousness as part of the next stimulus for the next action. Conscious imitation, therefore, tends to perpetuate itself in a circular sequence. The continued interaction of consciousness with reality and its stimuli ultimately provides the human mind with the possibility of gradually evolving towards a progressively more adequate adaptation to the real world depending on experience:

“Conscious imitation, while it prevents the incidence of natural selection, keeps alive the creatures which have no instincts for the performance of the actions required, nevertheless does not subserve the utilities which the special instincts do. Accordingly on the more general definition of intelligence, which includes in it all conscious imitation, use of maternal instruction, and that sort of thing - no less than on the more special definition - we still find the principle of natural selection operative” (Baldwin, 1896c, p. 561).

2.3 - The social legacy

In the human world, “social” phenomena such as care, education and examples provided by the mother in the early stages of life and the gradual achievement of self-sustenance activities are essential factors in the development of the individual (Baldwin, 1895b). Around the mid-1990s, the interaction between the developing mind of the child with the set of traditions, customs, habits deriving from his/her exposure to social life, had an increasingly central role in the scientific production of Baldwin (1895a, 1896a, 1897). Taking inspiration from *The Laws of Imitation* by De Tarde (1903), Baldwin elaborated an evolutionary vision of Social Hereditary, according to which the rules, the uses, the ideas of a generation can be transmitted to the next one creating an alternative hereditary mode, a legacy that he defines as “social”, which accompany the more widely recognized “physical” one. According to Baldwin, young organisms present imitative tendencies that allow them - through imitation, education or experience - to select some of the functions observed in surrounding individuals. This mechanism constitutes a form

of ontogenetic adaptation, as it contributes to the production of behavioural variations in the organism which favour its survival; it is, therefore, an application of the more general principle of organic selection. Social heredity keeps alive, by transmitting them from one generation to another, functions that are not yet, or will never become, congenital. Therefore, it represents an extra-organic transmission, a social alternative to natural heredity. The differentiation between the development of mental faculties in human beings and other species finds clear evidence in social heredity:

“The child is the animal that inherits the smallest number of congenital coordination, but it is the one that learns the largest number” (Baldwin, 1895a, p. 297).

With this affirmation, Baldwin wanted to underline the fundamental role played by intelligence in making human beings, in the early stages of life (which are in close correlation with his evolutionary process), capable of learning those features that natural heredity cannot pass down to them. We can therefore fully appreciate Baldwin’s vision on plasticity and intelligence: the extraordinary intellectual endowment of the child - which gives him a remarkable degree of plasticity - constitutes the evolutionary response of the human species to the scarce instinctual endowment compared to other species’ offspring.

Conclusions

James Mark Baldwin went through periods of alternating fortune: from the great success achieved on the scene of the emerging American experimental psychology (suffice it to say that he was the author or recipient of a considerable number of books, publications, conferences, academic assignments and prestigious awards) to the Baltimore scandal and the inevitable “exile” in France and Mexico. However, Baldwin’s fame has gone through ups and downs even beyond his life: after decades of total oblivion, his theories on organic selection have re-emerged thanks to the work of a large number of researchers who, while trying to minimize their importance or even to deny their validity (Huxley, 1942; Simpson, 1953; Waddington, 1961; Mayr, 1963), had the merit to draw attention on the work of an author who had been too long forgotten. Perhaps, it is also thanks to these critical quotations that Baldwin’s vast scientific production had some unexpected publicity that led to the rediscovery not only of his theories in the biology field but also of his contributions to developmental psychology and genetic epistemology (Cahan, 1984; Morgan & Harris, 2015).

After having spent several years researching a reconciliation between mental philosophy and experimental psychology, Baldwin turned his attention to child psychology, discovering the inseparability of the development process of the mind in the child from its evolution in the species. This topic became so relevant that it pushed Baldwin to go beyond the sphere of the human mind and to extend his theories to all behavioural functions and all living species, including animals and plants. In a nutshell, the principle that Baldwin theorized consists in the transmission of the adaptations acquired in ontogenetic growth to individuals of future generations, with a consequent

abbreviation of the ontogenetic process (Baldwin, 1896a). In order to integrate his organic selection with the already complex panorama of evolutionary theories of his time, Baldwin expressly defined his vision as an alternative to Lamarck's theory on the hereditary nature of acquired characters, while embracing a modified version of natural selection (Baldwin, 1896a).

About half a century after *A New Factor in Evolution*, the representatives of Modern Synthesis (Huxley, 1942)¹ provided conflicting interpretations on organic selection, underlining that the existence of a causal relationship between accommodation and mutation would support - and not deny, as instead Baldwin sustained - Lamarck's theory (Simpson, 1953, p. 115) either by comparing it to the *genetic assimilation* of Waddington (Mayr, 1963) or by relegating it to a secondary role (Huxley, 1963). After another fifty years, the debate on which is the most faithful interpretation of Baldwin's evolutionary theory still arouses considerable interest (Weber & Depew, 2003; Continenza, 2006; Sánchez & Loredó, 2007; Crispo, 2007). The rekindling of interest in Baldwin's evolutionary theory is mainly due to the development of contemporary technology, which through powerful advanced calculation systems has made it possible to simulate what Baldwin was not able to demonstrate experimentally. One of the studies that had the merit of bringing Baldwin's thought back to light is undoubtedly *How Learning Can Guide Evolution* by Hinton and Nowlan (1987). The possibility of a retroactive interaction between environment and behaviour is one of the most appreciated aspects of Baldwin's theory in the contemporary debate (Deacon, 2003; Pertile, 2019).

The socio-cultural aspect of Baldwin's evolutionary theory has also been reconsidered today. Although equally subject to the organic selection process, social heredity provides a social alternative to physical heredity, thus finding fertile ground in those contexts where biological evolution and social and cultural evolution are considered as two different ways in which the evolutionary process unfolds (Wilson, 1975; Deacon, 2003; Morgan & Harris, 2015).

Even if the effect named after him is the driving force behind James Mark Baldwin's recurring "rediscoveries", the rekindling of the debate on the role of social relationships in cultural and social development seems to be proper reward for a scholar, psychologist and epistemologist, who was engaged for most of his life in the study of the mind and the construction of knowledge.

Compliance with Ethical Standards

Conflict of Interest

Anna Rita Calandrini declares that he has no conflict of interest. Giuseppina Marsico declares that she has no conflict of interest.

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Ethical approval

This article does not contain any studies with human participants performed by any of the authors

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¹ This expression is often used to indicate the modern genetic interpretation of Darwin's natural selection (1809-1882) and Gregor Mendel's theory of inheritance (1822-1884)

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Students' and teachers' emotions. A study with children's drawings

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Abstract

The study describes the emotions of students and teachers in positive and negative interpersonal situations, as they are depicted in the drawings of 245 children from 2nd to 5th grade of primary school (7 to 11 years of age). The Scale of Emotions from PAIR was used to categorize the emotions of pupil and teacher in two situations (positive and negative) and to derive the correspondent Emotional climates. Chi-squared was employed for various comparisons. (1) The distribution of Emotions categories showed, as expected, a prevalence of positive, shared emotions in the positive situation and a prevalence of negative, often contrasting emotions in the negative situation. (2) Gender difference emerged only in the positive situation, in which girls represented themselves as happy more frequently than boys: (3) Grade difference emerged only in the negative situations, in which children of the 5th grade represented their teacher with a neutral face more often than children of the 1st grade, who tended to represent her as happy or sad. These results are interpreted in the light of boys and girls school adaptation and their increasing ability to understand and represent problematic interpersonal situations in school.

Keywords: Students' and teachers' emotions; Interpersonal situations; Children's drawings.

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Introduction

This exploratory study aims to describe the emotions of primary school pupils and teachers in different interpersonal situations, as they are pictorially represented by pupils. Children's conjunct descriptions of themselves and their teachers have not been frequently addressed, in particular from the standpoint of young children.

Overall, we know more about pupils' emotions than about those of teachers. In the context of school emotions associated with learning are the most important. These are related to the expectations for one's own results (hope for success, fear of failure, etc.) or, in retrospect, to the achieved results (pride or shame). Moreover, different moods can accompany school activities, such as curiosity and joy, but also boredom or anger (Putwain et al. 2108). The development of emotional regulation in primary school has also been widely studied (see Schlesier, Roden and Moschner, 2019 for a review). In particular, the ability to express joy, sadness and anger with moderate intensity can influence many aspects of school life, especially learning (Kwon, Hanrahan and Kupzyk, 2017).

The emotions associated with teacher-pupil interactions, however, were mainly studied with adolescents. For example, a large survey recently conducted by Mainhard et al. (2018) has shown that teachers capable of acting as "warm demanders", in order to promote agency and communion, arouse in their students positive emotions which can be useful in addressing successfully various school activities. On the other hand, pupils' emotions affect teachers' behavior: for example, the perception of emotional difficulties in some of their primary school pupils leads teachers to change the type of feedback they provide these students, making it "softer" than it would be if looking only at the children's performance, in an impersonal way (Glen et al, 2004).

In a review at the beginning of the millennium, Rosemary Sutton and Karl Wheatley (2003) noted the almost total absence of teachers' emotions in three of the most important Handbooks of educational and teaching psychology. Breaking the ice were some qualitative surveys, with individual interviews or focus groups, in which participants described a variety of emotions and feelings. On the positive side, they mentioned affection for the pupils and caring for them, but also joy and satisfaction for their own work and, although more rarely, surprise and fun. On the negative side frustration and anger were named most often, followed by anxiety (more common for beginners), sense of helplessness or guilt for the difficulty of satisfying the increasing demands of one's role, and finally sadness, especially for pupils' poor conditions that went beyond their helping efforts (Sutton and Wheatley, 2003). Quantitative studies have been subsequently developed, especially about negative emotions in relation to risks of burnout (cfr. Mérida-López and Extremera, 2017 for a review). In a study including also a group of Italians, Fiorilli et al. (2015) investigated the effect of anger, fear, sadness and disgust on various aspects of the work burnout of primary school teachers. The authors found that the intensity of these emotions during and after some critical moments of the school day significantly predicted emotional exhaustion and contributed to induce a sense of failure in personal fulfillment.

The research on teachers' positive emotions is still relatively scarce: even in a manual entirely dedicated to emotions (Hall and Goetz, 2013) the possible sources of well-being are linked almost exclusively to the down-regulation of negative emotions. However, some interesting data have begun to appear. For example, a longitudinal research on joy (Frenzel, Becker-Kurz and Pekrun, 2018) has shown that, over time, the teacher's enthusiasm acts positively on the students' emotions and motivations, who in turn increase the well-being of the teacher herself in a virtuous circle. Another recent study (Keller et al., 2018), conducted like the previous one with high school students, showed that the perception of the teacher's genuine enthusiasm tends to spread to pupils and is a powerful antidote to boredom.

Pupils' views on teachers' emotions, both positive and negative, are relatively understudied, especially in young children. In fact, various studies (e.g. Becker et al., 2014; Jiang et al., 2016) including that of Keller et al. (2018) mentioned just above, have been based on interviews or questionnaires with adolescents, whose ability to report on the emotions of their teachers seems quite obvious. The data about young children are not many, and partly derived from information on behavior rather than emotions as such. For example, two studies have shown that children are sensitive to shouting or harshly reprimanding, i.e. manifestations of teachers' negative emotions (Thomas and Montgomery, 1998; Lewis 2001). Nancy Perry and her colleagues (2002), in a study aimed at promoting self-regulated learning in kindergarten and primary school children, found that about half of the young participants initially believed that their mistakes saddened the teachers, an idea not necessarily realistic and certainly not very useful. Andersen, Evans and Harvey (2012) also found a limited awareness about teachers' emotions in the youngest of the participants in their survey (pupils from 8 to 12 years old, with whom they conducted focus groups about school life); until an intermediate age children did not even try to explain the teachers' moods; only older children were generally able to describe these feelings accurately and also to understand their importance for relationships in the classroom. In addition, while younger children tended to overestimate the effects of bad moods, older children understood their transitory nature. However, the perception of teachers' emotions by primary school pupils remains a largely unexplored territory.

In the above reported researches, to assess children's ideas about theirs and their teachers' emotions, we used the drawing of oneself with a teacher following the PAIR system (Bombi, Pinto and Cannoni, 2007) devoted – as the name suggests – to the Pictorial Assessment of Interpersonal Relationships. The PAIR scales are well adapted to the pictorial skills of children aged 5 and over and have been successfully used in various studies (e.g. Cannoni & Bombi, 2016; Corsano et al., 2013; Dimitrova, 2016; Laghi et al. 2013; 2104; Misailidi, Bonoti, & Savva, 2012).

In addition to requiring the drawing of at least two persons, a salient feature of the PAIR approach is to circumscribe the task in order to reduce the great variability typical of children's drawings. To this end it is useful to adopt a contrasting task, i.e. the request of two drawings that compare two relationships,

or two different circumstances of the same relationship. In the present study, we compare two common instances of teacher-child relationships: a positive vs. a negative moment of school life. We expected that children would represent both themselves and their teacher with a happy expression in the positive situation; sadness of the pupils should prevail in the negative situations, while for the teachers we expected in these cases a variety of expressions (neutral, angry, sad) but rarely happiness. We also expected that the emotional climate would change, with shared joy of child and teacher in the positive situations, and more varied combinations of emotions in the negative situations. Age can impact the representations, because of children's increasing awareness of their teachers' emotions which we have mentioned above (Andersen, Evans and Harvey, 2012). It is also possible that girls will stress their happiness more than boys, given their more successful adaptation to school already evident in primary school (for recent reviews, see Koca, 2016; Ribeiro, Pereira, & Pedro, 2019).

Method

Participants

Fifteen primary school classes from 2nd through 5th grades in a Sicilian town took part in the study. The school had four classes per grade, each class including an average of 25 pupils. All classes agreed to participate, with the exception of a 4th grade class. Participants were distributed per classes as follows: 83 students in 2nd grade (41 boys), 61 students in 3rd grade (35 boys), 44 students in 4th grade (24 boys) and 57 students in 5th grade (28 boys).

The majority of children, whose ages ranged from 7 to 11 years old, came from lower- and middle-class families; about half of the mothers were housewives. The fifteen teachers involved, one per class, were all women and had an average of 16 years of service (range: 7 to 30 years); since the Italian school tends to follow a looping system, most of these teachers had taught the same class beginning with first grade. After the acceptance of the school authorities, the written consents of the teachers and parents were obtained; each child consented in oral form. The research project complied with the requirements of the first author's Ethical Committee.

Procedure

After a short familiarization, children were asked to make two drawings showing us something about their relationship with their teachers. Each child then received two pages, blank except for the following instructions written at the top: "Me and my teacher [target teacher's name] when we're getting along" (P drawings) and "Me and my teacher [the same teacher's name] when we're not getting along" (N drawings). The request to represent a positive moment and a negative moment with a teacher evokes different emotions, without openly suggesting their presence and quality.

Since coloring the drawing would have taken longer than the school allowed (30'), pencil drawings were collected; no time limits were assigned, but all participants completed the drawing within 20'. To avoid risks of copying or even involuntary suggestion, the children were divided into small groups, with spaced tables, and were encouraged to work individually since it was important for us to obtain a variety of drawings, not necessarily masterpieces. It was also made clear that this was not a school task and that no grades would be given. As in many previous experiences with the PAIR procedure, no cases of identical or very similar drawings have been found.

Measures

We used two of the PAIR scales: Emotions and Emotional Climate. The scale of Emotions comprises four nominal categories to be applied separately on each figure in the drawing. These categories are: Neutrality (when no emotion is detectable); Contentment (to be assigned for any positive emotion, such as joy, serenity, enthusiasm); Discontent (to be assigned for negative emotion leading to retreat from the relationship, such as sadness, fear, pain); Hostility (to be assigned to emotions linked to aggression, such as anger, menace, contempt). The scale was originally devised and validated by Bombi and Pinto (1993) in a pilot study with 100 children (balanced for gender and age in five groups from 6 to 11 years) who were asked to draw themselves with a friend (F drawing) and with a non-friend (NF drawing). The inter-rater agreement was 92% for F drawing and 88% for NF drawing; discrepancies were always over Neutrality vs. presence of an emotion, never resulting from the attribution of different emotions. The quality of the partner affected the figures' emotions: in the F drawings, sadness or anger were extremely rare; in the NF drawing, negative emotions (Discontent + Hostility) were significantly more frequent than Neutrality plus Contentment. A comparison between the two groups of emotions in the F vs. NF drawings with the McNemar test showed a significant prevalence of negative emotions in the NF drawings.

The scale of Emotional Climate is derived combining the emotions shown by each figure within the same drawing. There are four categories, ordered by increasing similarity of the partners' emotional state: Contrasting Emotions (Contentment vs. Discontent, or Contentment vs. Hostility; or Discontent vs. Hostility); Unilateral Emotion (i.e. one neutral figure vs. the other showing an emotion); Shared Neutrality (i.e. both figures neutral); Shared Emotion (i.e. both figures Content, or both Discontent, or both Hostile). A comparison between the non shared emotions (Unilateral + Contrasting) vs Shared emotions plus Shared neutrality in the F vs. NF drawings the McNemar test showed a significant prevalence of non shared emotions ($p = .031$) in the NF drawings.

In the present study data were scored by the second author. Two boys and two girls were randomly chosen from each class, for a total of 60 participants and 120 drawings (22% of the collected data). The first author scored these 120 drawings. The two raters reached a significant level of inter-rater reliability (Cohen's Kappa ranging from 0.80 to 0.95, with $p < 0.001$).

Data analysis

Since the Emotions scale requires assigning one of four nominal categories to each figure in each drawing, the following four distributions were generated: Self in P, Self in N; Teacher in P; Teacher in N. The Emotional Climate scale requires assigning one of four ordinal categories to each drawing; hence two more distributions were generated, one for P and one for N drawings. Chi-square statistics were used first to compare the distribution of each figure's Emotions categories for determining whether some of these categories were over-represented, and then the same individual Emotions categories were considered in co-occurrence with gender, and separately with school year, in order to investigate the hypotheses that individual Emotions categories might be over-represented as a function of gender or school year. The same set of analyses were then performed on the categories of Emotional climate. Considering the fact that multiple tests were planned, we adopted a conservative p-level of $\geq .001$.

Results

Positive situations

In the P drawings only two of the possible four categories of the Emotions scale have been found: Contentment and Neutrality. Contentment, shown by smiling faces and/or by positive words (of the child's joy or pride, and of the teacher's satisfaction), was largely dominant (Self: $\chi^2 [1] = 116,58$; $p < .001$; Teacher: $\chi^2 [1] = 136,69$; $p < .001$): in fact, for the Self, Contentment appeared in 207 cases (84%) vs. 38 cases of Neutrality (16%); for the Teacher the frequencies were respectively 214 (87%) vs. 31 (13%). There were no differences relative to grade (Self: $\chi^2 [3] = 2,25$; $p = .52$; Teacher: $\chi^2 [3] = 5,49$; $p = .14$). Gender differences emerged only in the Self representation ($\chi^2 [1] = 11,62$ with Yates correction; $p = .001$) with girls showing Contentment in 109 cases over 117 (93%) while for boys the corresponding figures were 98/128 (77%). The comparison of teachers' Emotions by gender was not significant ($\chi^2 [1] = 1,62$ with Yates correction; $p = .204$).

Given the fact that only positive emotions were found, both for Self and for Teacher, Contrasting Emotions did not emerge when the Emotional Climate was examined. The two figures typically showed the same mood (Shared Emotions, in fact shared happiness = 195 cases over 245, 80%; Shared Neutrality = 19 cases, 7%); in the remaining 31 cases (13%) of Unilateral Emotions one of the figures was happy (a bit more often the adult) while the other was neutral ($\chi^2 [2] = 236,80$; $p < .001$). There were no differences related to grade ($\chi^2 [6] = 8,067$; $p = .233$). Girls tended to show Shared Emotions (happiness) in 102 out of 117 cases (87%), while for boys Shared Emotions were 93 out of 128 cases (73%); boys instead showed more often than girls a Shared Neutrality (15 cases vs. 4; 12% vs. 3,5%), or a Unilateral Emotion (20 cases vs. 11; 15% vs. 9,5%) typically depicting a smiling teacher when their own face was neutral. The statistical analysis, however, produced a p-value higher than

that we had set ($\chi^2 [2] = 8,92$; $p = .012$), hence the described differences must be considered with caution.

Negative situations

In the N drawings all the four Emotions categories were found, with different accents for the two figures. Children's prevalent emotion was Discontent (124 cases out of 25; 51%), mainly in the form of sadness, shown by tears and sulky mouths, and a few times in the form of fear, shown by open mouth, staring eyes and wrinkled eyebrows. Hostility was rare (17 cases, 7%). Contentment and Neutrality were equally represented with 52 cases each (21%) ($\chi^2 [3] = 99,05$; $p < .001$). Also for the Teacher some emotions were over-represented ($\chi^2 [3] = 15,06$; $p = .002$), but the two predominant expressions were Contentment, shown by a seemingly unchanging smile (33%), and Hostility (29%) or - more precisely - anger, clearly shown by frowning eyebrows, mouths wide open to shout, and often also by balloons with harsh words, sometimes in block letters to suggest rage; Neutrality (21%) was as frequent in teachers as in pupils, while Discontent (17%) ranked last in frequency. Raw frequencies can be seen in the total of columns in Table 2. For the Self, no differences emerged by gender ($\chi^2 [3] = 6,112$; $p = .106$) or by school year ($\chi^2 [9] = 10,965$; $p = .278$). Gender had no effect also for the Teacher ($\chi^2 [3] = 0,949$; $p = .814$), while the Teachers Emotions changed according to grade ($\chi^2 [9] = 31,559$; $p < .001$), as shown in Table 1.

Tab. 1. Distribution of Teacher's Emotions in negative situations by grade (in brackets, percentages by column)

	2 nd grade	3 rd grade	4 th grade	5 th grade	Total
Neutrality	8 (9)	10 (16)	12 (27)	22 (39)	52 (21)
Contentment	33 (40)	17 (28)	15 (34)	16 (28)	81 (33)
Hostility	24 (29)	19 (31)	17 (39)	10 (17)	70 (29)
Discontent	18 (22)	15 (25)	0 (0)	9 (16)	42 (17)
Total	83 (100)	61 (100)	44 (100)	57 (100)	245 (100)

In the Teachers' faces, Contentment decreased from first to fifth grade; negative emotions (Discontent and especially Hostility) followed a reversed U shaped trend; Neutrality instead gradually increased, becoming the most frequent representation in the fifth grade.

The Emotional Climate "when things don't go well" showed Contrasting Emotions in 94 out of 245 cases (38%), and there were also 52 cases of Unilateral Emotion (21%); Shared Emotion appeared in 73 drawings (30%), and Shared Neutrality in 26 drawings (11%). These frequencies are significantly different ($\chi^2 [3] = 41,45$; $p < .001$). A closer inspection of the data showed that 76 of the 94 cases of Contrasting Emotions were based on child's Discontent vs teacher Hostility (42 cases) or Contentment (34 cases); a happy child who faced a sad or hostile teacher appeared only in 12 drawings and even more rare (6 cases) was an hostile child opposed to a happy or

sad teacher. The 73 cases of Shared Emotions also deserved an in-depth inspection. Here we found 30 cases of shared Discontent and 10 cases of shared Hostility; but, surprisingly, the more frequent case was that of shared Contentment (33 cases). Gender did not affect this distribution ($\chi^2 [3] = .968$; $p = .809$) while school year differences emerged ($\chi^2 [9] = 23.93$; $p = .004$), as shown in Table 2.

Tab. 2. Distribution of Emotional Climate in negative situations by grade (in brackets, percentages by column)

	2 nd grade	3 rd grade	4 th grade	5 th grade	Total
Contrasting emotions	36 (43)	28 (46)	16 (36)	14 (25)	94 (38)
Unilateral emotion	10 (12)	10 (16)	13 (29)	19 (33)	52 (21)
Shared neutrality	4 (5)	6 (10)	6 (14)	10 (17)	26 (11)
Shared emotion	33 (40)	17 (28)	9 (21)	14 (25)	73 (30)
Total	83 (100)	61 (100)	44 (100)	57 (100)	245 (100)

Both Contrasting Emotions and Shared Emotion tended to reduce with the advancing of school years while a recognition of the possible figures' neutrality was reflected in the gradual increase of Shared Neutrality and Unilateral Emotion.

Discussion and Conclusions

The drawings of positive situations yielded some quite obvious information: when things are going well there is no discontent or hostility; children and teacher share a positive emotional state, especially joy, pride and satisfaction. The lower frequency of joy in boys, and their lesser emotional communality with teachers, correspond to the well known better adaptation of girls to school, and to their easier relationship with teachers of their own sex (Koca, 2016). What this research adds is simply that many children seem to be aware of these emotions, at least at a tacit level, since they reveal them in their drawings.

The representation of difficult moments appears more informative. First, there are relatively few young artists who represent themselves as immune to negative feelings (almost always sadness and rarely hostility). Teachers, on the other hand, are more often characterized by anger and hostility than sadness and this shows some ability to grasp the emotional situation of the adult; in fact, the "surface" emotional regulation that many teachers think they are successfully doing is far from easy (Sutton & Harper, 2009). Also the positive emotions attributed to the teacher could be interpreted as a teachers' difficulty to rule adequately their emotional expressions: pupils would perceive as happy a teacher who simply keeps himself calm when the interpersonal situation is not easy. However, it is also possible for a pupil to paint the teacher happy while he cries to highlight, with this contrast of feelings, the temporary breakdown of the interpersonal relationship.

This somewhat coarse representation becomes more nuanced over time: this could be explained by the increasing dominance of the pictorial medium in the last classes of the primary school, or with an actual greater ability to tolerate the contrast of emotions in times of difficulty. Also the less frequent representation of sad teachers points to an increasing emotional competence of children, in line with Perry et al. (2002).

The lack of further information on emotional experience (for example, through interviews or observations) is evidently the greatest limitation of this study. The number of participants is also a limit, as it did not allow to quantitatively analyze all possible combinations between the emotions of the participants in the two situations. However, we believe that, limited to its exploratory nature, the study confirms the usefulness of the pictorial medium and directs towards further and broader investigations of pupils' views on emotions in primary school.

Author Contributions

The individual contributions of the authors were as follows: A.S. Bombi: literature review and design of the study, second judge for the drawings, writing the text; E. Cannoni: co-design of the study, first judge of the drawings; F. Galli: data collection; A. Di Norcia: co-design of the study and statistical analyses.

Compliance with Ethical Standards

Conflict of interest

The authors declare that they have no competing interests.

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All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Each participant dealt with the process of informed consent.

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Addressing maladaptive interpersonal schemas, poor metacognition and maladaptive coping strategies in Avoidant Personality Disorder: The role of experiential techniques

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Abstract

Avoidant Personality Disorder (APD) is the most prevalent diagnosis amongst the personality disorders. However, it remains under-researched, and few psychotherapeutic approaches have proven effectiveness in treating the disorder. Focusing on specific elements of psychopathology may therefore help in refining treatments for this disorder. Here we present a case where Metacognitive Interpersonal Therapy (MIT) was used to directly address the negative metacognitive schemas held by clients with APD. We also describe the theoretical background of MIT and why it may be effective in the psychotherapeutic treatment of APD.

Keywords: Maladaptive interpersonal schemas; Poor metacognition; Coping; Experiential techniques; Imaginative techniques; Avoidant Personality Disorder.

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Introduction

Avoidant Personality Disorder (APD) is characterized by withdrawal from social relationships, social isolation, a sense of the self as inadequate, hypersensitivity to social judgement, and feelings of group exclusion. Individuals presenting with APD simultaneously long for inclusion but fear connection. This anxiety is underpinned by maladaptive cognitions such as chronic self-doubt, a poorly integrated sense of self-identity, difficulties in managing negative emotions and poor agency (Sorensen et al., 2019). In terms of psychotherapeutic treatment, evidence for the effectiveness of psychological interventions for APD is limited (Simonsen et al., 2019), and studies report mixed results. A number of therapeutic models, including Interpersonal Therapy (IT), Acceptance and Commitment Therapy (ACT), Dialectical Behavior Therapy (DBT) and Schema Therapy (ST) have yielded positive results for symptom reduction, with evidence of stability at follow-up (e.g. Chan et al., 2015; Bamelis et al. 2014). There is also evidence that group-CBT was associated with better outcomes than short psychodynamic psychotherapy (Emmelkamp et al., 2006). However, CBT for this group has also been associated with high relapse rates (Seemüller et al. 2014). The emotion regulation difficulties that APD-diagnosed patients present with may also have influenced early drop-out rates (Weinbrecht et al., 2016). Overall, psychotherapy can be effective in this population, but results are generally reported for specific, targeted outcomes, and taken in the context of elevated rates of treatment non-responses and drop-outs. Therefore, there is significant room for improvement in the specification and effectiveness of interventions.

We propose that in order to increase effectiveness, psychotherapies for APD need to better attend to: a) maladaptive interpersonal schemas, both implicit/automatic and conscious; b) impaired metacognition, which hampers the understanding of cognitive-affective processes that lie behind maladaptive schemas; and c) dysfunctional behavioral coping strategies such as avoidance, submissive compliance or perfectionism. Unaddressed, each or all of these elements may reduce therapy adherence, reducing potential for achievement of broad, stable therapeutic outcomes both in terms of symptoms and social functioning.

Maladaptive interpersonal schemas, metacognition and behavioral coping in Avoidant Personality Disorder

Maladaptive interpersonal schemas

Schemas are stable meaning-making structures. Humans use them to select relevant information in order to meet their goals, and to make predictions about how others may react to their requests and wishes. Examples of such schema include core ideas about the self and others - with cognitive, affective and embodied aspects - as well as relational procedures for fulfilling wishes or to manage predicted negative responses of others (Dimaggio et al., 2020; Odgen & Fisher, 2015). These

structures are mostly sequelae of one's developmental history. From a psychopathological perspective, experiences of abuse and abandonment are predictors of personality disorders (Johnson et al., 1999). Emotional neglect is particularly associated with the former Cluster C PDs, including APD (Zhang et al., 2012; Johnson et al., 2000). That said, research into the formation of schemas in APD has thus far only investigated attachment related-schemas, whereby the presence of attachment figures perceived to be neglecting or lacking attunement are related to an individual's sense of self as unworthy and unlovable (Eikenaes et al., 2016).

The structure of schemas that we adopt here (Dimaggio et al., 2020) is derived from the formulation described by the Core Conflictual Relational Theme (CCRT) (Luborsky & Crits-Christoph, 1990) and takes into account the concept of relational testing proposed by Control Mastery Theory (CMT; Weiss, 1993; Gazzillo, Genova et al., 2019; Gazzillo, Kealy et al. 2020). They include a) a core *wish*, which corresponds to the activation of basic evolutionarily selected motives (Gilbert & Gordon, 2013; Liotti, et al. 2017; Panksepp & Biven, 2012); b) core self-images, with prominent negative self-images, e.g. self as unworthy, or unlovable, which go alongside over-modulated but still accessible positive self-images, e.g. the self as worthy, self as lovable. The schema also include *Other Responses*, (expected or perceived) e.g. rejecting, neglecting, critical. Again, positive types of *Other Responses* often exist but are overshadowed by the negative appraisals. Finally, after assessing the *Other Responses*, there is a *Self-Response* which includes cognitive, affective, behavioral and somatic reactions.

In this model, the presentation of APD is driven by a range of different schemas, depending on the core motive at stake in a specific episode. For example, when driven by an attachment schema, patients may hold a core self-belief of the self as unlovable and others as rejecting or disengaged. The Self-Response is one of sadness, as the core self-belief is confirmed, leading to anergia and apathy. Therefore, the individual may use behavioral avoidance in order to prevent ongoing frustration, for example, where the individual suppresses their tendency to ask for care in order to avoid rejection.

When social rank schema are active, the dominant core self-image is of the self as unworthy and inferior, vis-à-vis a critical and contemptuous other. After being confronted with impending or actual rejection, or when the individual interprets others' reaction as signs of impending rejection, the individual may feel ashamed. In this situation, they experience their core-idea of being unworthy and flawed as being made public. This leads to coping strategies including avoidance, submissive compliance (in order to please the other and avoid further criticism), or perfectionism. At times, when the positive self-image of self-as-worthy comes to the fore, APD diagnosed individuals react with anger to criticisms that they perceive as unfair.

When autonomy/exploration schema are active, individuals diagnosed with APD represent themselves as impotent, paralyzed or deprived of energy. They imagine that the other will not support them, will constrain them, set limits upon them, or will suffer because of their independent deeds, e.g. the mother will get depressed if the son with APD expresses the idea of moving to a different town for study or work. Typical

self-responses are frustration, increased impotence, a sense of constriction and guilt. These individuals tend to abandon their plans, but harbor resentment because they expected to be supported or blame themselves for their passivity. Alternatively, they still pursue independence, but lie in order to avoid facing the predicted or actual negative reactions of the others. Finally, when the individual is driven by the wish for group inclusion, they may portray themselves as different, alone, and alienated; and others as rejecting and linked by bonds that they (the individual diagnosed with APD) will never be able to share.

Metacognition

Metacognition denotes the capacity to identify mental states, both in oneself and in others, reason about these states, and to regulate them (Dimaggio & Lysaker, 2015; Semerari et al., 2003). It is broadly impaired in personality disorder (Semerari et al., 2014). For individuals diagnosed with APD, there is a pronounced difficulty in the individuals awareness of their feelings, identification of these feelings and labelling of them (Bach et al., 1994; Nicolò et al., 2011). Patients with comorbid social phobia and APD also have poorer self-reflective capacities compared to individuals with social phobia only (Eikenaes et al., 2013). In addition, a reduced capacity to identify one's own thoughts and feelings hampers the capacity to identify and integrate the interpersonal trigger of their distress in a given situation. In therapeutic interactions this is reflected in the individual struggling to effectively convey their inner experience, speaking in abstract, vague and confusing ways, and often resorting to intellectualization (Colle et al., 2017; Dimaggio et al., 2007a). Individuals with APD presentations tend to have problems in realizing that their ideas about the self and others are mostly subjective hypotheses, instead are likely to consider them as objective facts – evidenced via deficits in metacognitive differentiation (Dimaggio et al., 2007b; Semerari et al., 2003). They also have difficulties in forming a mature and decentered theory of others' minds (Moroni et al., 2016; Pellicchia et al., 2018).

Maladaptive coping strategies

In response to interpersonal stressors, individuals with APD diagnoses often display emotion dysregulation (Dimaggio et al., 2018), enacting a series of dysfunctional coping behaviors (Lynch et al., 2016). In particular, they tend to over-use avoidance and emotion inhibition (Arntz, 2012a; Dimaggio et al., 2018; Popolo et al., 2014); or alternatively disguise their feelings to avoid negative judgments (Grandi et al., 2011). These strategies both increase alienation and loneliness and may also precipitate negative reactions from others (Lampe & Malhil, 2018).

In order to distance themselves from negative emotions, individuals with APD also tend to procrastinate, which may reduce the impact of shame or inadequacy related cognitions (Dimaggio et al., 2015b); or they may overuse online videogames (Li et al., 2016) to numb themselves from the impact of distressing cognitions. Individuals may also resort to

perfectionism (Hewitt & Flett, 1991; Dimaggio et al., 2018, being highly concerned with their perceived mistakes or may hold significant self-doubt regarding their actions (Taylor et al., 2004). Furthermore, individuals may also harbor ideas that others hold negative views of them (Hewitt & Flett, 1991) - a further trigger for behavioral avoidance (Shahar et al., 2003).

The outcome of most of these behavioral strategies is reduced emotional experience and an accompanying diminished capacity to label emotion arousal – consistent with alexithymia (Constantinou, et al, 2014; Nicolò et al., 2011). Moreover, individuals with APD also tend to disconnect themselves from positive affect, thus leaving them less likely to seek out new experiences (Wilberg, et al. 1999).

Targeting interpersonal schemas, metacognition and coping in avoidant personality disorder

Based on our understanding of APD psychopathology, an effective treatment will likely need to: a) counteract behavioral coping; b) promote metacognition to the point of understanding that one is guided by schemas; and c) help patients realize they are guided by schemas, both at the level of cognitive representations of their social interactions and with regard to automatic procedures for relational behavior. The aim for treatment is that intervention yields incremental benefits in terms of adherence and outcomes.

Metacognitive Interpersonal Therapy (MIT; Dimaggio et al., 2015a; 2020) follows a series of semi-structured procedures, divided into two phases: a *shared formulation of functioning* and *change promoting*. Therapists first collect and explore narrative autobiographical episodes, with the goal of forming a shared understanding of their maladaptive interpersonal schemas with their clients. In the early phase of therapy, behavioral experiments are designed to counteract coping strategies such as avoidance, perfectionism or procrastination. The explicit goal here is to explore the inner experience of clients when they abstain from using these coping strategies, thus strengthening their metacognitive self-awareness. Once patients with APD become aware that they are guided by a set of ideas of self and others, the next step, *change promoting*, is to promote differentiation. Here the patient's goal is to realize that these ideas are mostly subjective, and are schema-driven, rather than actual representation of real-life interactions. In parallel, therapists help patients to become aware of their positive ideas about self and others, to connect to their underlying schema-driven thoughts and to form a sense of agency. This enables them to act based on preferences that they themselves endorse and take ownership of, whilst simultaneously developing a sense of self as worthy of pursuing these goals.

There is growing evidence for the effectiveness of MIT in the treatment of APD using small case and small sample approaches. With regards to individual therapy, in a first case study one client with APD was treated successfully (Dimaggio et al., 2017). In a second study, all three patients with APD treated in a multiple-baseline case-series no longer met criteria

APD diagnosis after 1 year of treatment (Gordon-King et al., 2018; 2019). Furthermore, for patients with mixed PDs including APD, there are also outcomes from two non-controlled studies and one pilot Randomized Controlled Trial of MIT delivered in a semi-structured psychoeducational/experiential program (MIT-Group) (Popolo et al., 2018; 2019; Inchausti et al. 2020). Summarizing across these treatment studies, patients with PDs (including APD diagnoses or prominent APD traits) demonstrated robust adherence to therapy and therapeutic improvements in terms of symptoms, social functioning, and metacognition.

Experiential techniques in MIT for APD

In its most recent manualized form, MIT adopts a wide array of experiential techniques, including guided imagery and rescripting (Hackmann et al., 2011), role-play and two-chair approaches (Moreno, 1975; Greenberg, 2002; Perls et al., 1951), bodily exercises (Lowen, 1971; Ogden & Fisher, 2015) and behavioral experiments (Dimaggio et al., 2020). Selection and use of appropriate techniques is guided by a shared decision-making process within therapy and the goal of using these techniques changes through the course of therapy via an ongoing re-evaluation of the case formulation.

One example of this is the extensive use MIT makes of guided imagery and rescripting. Usually we first ask the patient to focus on a specific autobiographical memory. We ask him/her to return to the episode ‘as if’ it was happening in the here and now. During the first recollection we try to increase emotional arousal by guiding the patient towards greater connection with the specific distressing emotion (such as fear, sadness, grief, guilt or shame), generating a richer awareness of how an interaction with the other has impacted upon the client. Then, during rescripting we ask the client to a) abstain from maladaptive coping strategies, for example reducing tendencies towards avoidance, perfectionism, overcompliance, inverted attachment, and over-dependence; b) connect himself/herself with ones primary wishes, such as the desire to be valued, cared for, being autonomous, or playful; c) express the primary wish to the other(s) in the episode until they experience emotion resolution, or to the point that they realize they have agency over their actions, even if it is difficult to enact different behaviors; and finally d) we often ask the client to acknowledge a more benevolent, supporting, compassionate self-aspect, counteracting the influence of the negative self-aspect in sustaining dysfunctional schema.

MIT has also adopted experiential techniques on the basis that emerging evidence suggests that they yield a unique contribution to psychotherapeutic change, beyond focusing on relational factors alone. For example, Stiegler et al. (2018) reports that adding two-chair work was associated with greater change in depression and anxiety compared to a baseline phase where it was not used. Arntz (2012b) noted how guided imagery rescripting may be as effective as imagery exposure and has less potential for adverse effects, though dismantling studies are still needed to evaluate its unique contribution to psychotherapeutic change. Recently, Romano et al. (2020) noted that, for patients with social anxiety disorders, imagery

rescripting was associated with more effective change in autobiographical memory content than simple imaginal exposure or supportive counseling, with the latter condition generating no change at all.

With regard to APD, the rationale for the use of experiential techniques is that these clients resort to emotional and behavioral avoidance to the point that it is: a) difficult for the clinician to understand their cognitive-affective processes; and b) they are unable to pursue behaviors in real-life that will help them break their schema-driven patterns and fulfill life goals - such as working productively, engaging in stable romantic relationships, or belonging to groups. As a consequence, the combination of in-session experiential work such as guided imagery and rescripting, and of in-vivo behavioral experiments has two goals.

First, these techniques help individuals with APD to better understand their cognitive-affective processes, to the point that they can understand that their predictions of how others will respond to them are schema-driven; and that these cognitions lead to behavioral coping strategies that hamper the fulfilment of their core wishes. Second, experiential techniques have the purpose of both helping patients with APD connect to healthier self-aspects and adaptive schema; and in facilitating the individual to adopt different, more benevolent perspectives towards both the self and others.

For the sake of brevity, we illustrate the above position with a clinical vignette of how MIT adopts experiential techniques in order to address the aforementioned aspects of APD psychopathology. Specifically, we focus on how techniques counteract behavioral coping, improve metacognition and change maladaptive interpersonal schemas whilst also fostering access to healthy self-aspects.

The case of Gianluca

Gianluca is 32 years old man who works in a warehouse and lives alone. He reports that he is depressed and also anxious about the idea of meeting people, therefore he spends most of his time at home. He lost his mother when he was 18. He describes his father as always humiliating him, aggressive and frequently neglectful. Consequently, they have minimal contact. He referred himself to psychotherapy with one of us (V.V.) because he longed for a richer and more fulfilling social life. He had a few acquaintances, mostly relating to biking (his passion), but he rarely toured with them as he avoided group meetings. Furthermore, he had never managed to establish an intimate long-term romantic relationship.

Therapeutic relationship

Gianluca had difficulties forming a connection with his therapist, who in turn felt estranged, distant and at times felt bored and confused. She did not know how to help him. For example, during the first few sessions, he abruptly stood up before time was up and asked for the next appointment without giving any explanation for the premature termination.

By the third session the therapist directly enquired about what Gianluca felt was happening between them. Gianluca said he felt ridiculous, unworthy and was convinced that therapist despised him. He revealed this was the reason why he avoided greeting her, as he mostly wanted to avoid contacts where he might experience humiliation. The therapist tactfully explored if she had given any signs of condescending or shaming him and Gianluca acknowledged she had not. By the second month of therapy he started feeling more relaxed in therapy and realized that he could enjoy talking with her about things that interested them both, e.g. their shared interest in a TV series.

Therapeutic contract: goal setting and tasks

Gianluca requested therapy in order to overcome his depression, have more social contacts and form a romantic relationship. In order to reach these goals, the therapist introduced an intermediate goal: improving awareness of inner states (i.e. metacognitive monitoring) in order to better understand his inner functioning. She also pointed out that one relevant psychological goal within therapy was to explore whether the negative ideas Gianluca held about himself and others were incontrovertible facts or whether he was able to access more benevolent alternatives.

During the drafting of the therapy contract, the therapist and Gianluca agreed that counteracting avoidance through graded exposure was necessary, both in order to break Gianluca's reliance on maladaptive coping, and to better understand the cognitive-affective antecedents that Gianluca was unaware of. They also agreed to use in-session experiential techniques (e.g. guided imagery and rescripting). As therapy progressed, once Gianluca was aware of how he was driven by maladaptive schemas, the contract was updated and he agreed to commit to actions consistent with his underlying wishes and to act accordingly.

Case formulation

During the first sessions, using the behavioral experiments described in the next section, a shared understanding of Gianluca's functioning was formed. His core wish was for group belonging, but he was guided by a negative core image of himself as different and an outcast. He portrayed others as superior, spiteful and willing to discriminate. When facing these perceived aspects of others, he switched to a different motive - social rank. He felt inferior, ridiculed and longed for appreciation, through which he felt he could restore his low self-esteem. These schema were rigid and shaming, as even at times others actually included him, he still worried about rejection: "What do they think of me? I don't say anything interesting, I'm dumb, boring". When he ruminated on these thoughts and feelings his body became stiff, deprived of energy, experiencing a sense of alienation and estrangement. To alleviate these negative states of mind he would retreat from the group and avoid further contact. Alternatively, when he switched to social rank motives he also experienced a sense of self as weak facing another stronger and aggressive. This

would invoke fear in him, which served as a further trigger for behavioral avoidance. Gianluca noted that there were times in which he was cognizant of a healthy sense of his self as interesting, worthy and deserving to belong, but he still appraised others as rejecting and humiliating, triggering a cognitive appraisal of unfairness, accompanied by anger.

Application of experiential techniques

In order to counteract behavioral coping and open a more in-depth exploration of Gianluca's inner world, the therapist proposed several behavioral exercises. Gianluca agreed to try and stay with his colleagues by the table during lunch break, instead of eating alone. Staying with others enabled themes relating to group exclusion, unworthiness, weakness and shame to emerge into the therapeutic space. However, Gianluca's improved metacognitive capacity also gave him a clearer picture of his inner world, licensing the therapist to ask him for associated autobiographical memories. He remembered an episode in which his father lectured him in front of his friends when he was 7 years old, and also episodes in which his primary school friends isolated him or mocked him because of his physique. When describing these memories in session he re-experienced a sense of powerlessness – relating that he stayed silent and did not react.

The therapist proposed a guided imagery and rescripting exercise around the experience of group exclusion at primary school, which Gianluca agreed upon. This time the idea was to try and counteract the maladaptive coping of avoidance and surrender whilst accessing a different sense of self.

The following dialogue is taken from the imagery exercise. Gianluca has just performed a brief mindfulness exercise and is now exploring his memory whilst his eyes are closed.

G: "I'm in the classroom, I'm 7. It's playtime. My schoolmates all sit at the same table, I enter the room but no-one invites me to have a snack with them".

T: "What are you thinking at this moment?"

G: "I want to play with them, but no one wants me. I watch them, they play, they have fun, some friends of mine look at me but say nothing".

T: "What do you think and feel? How do you see yourself?"

G: "Alone. I'm so ashamed, my cheeks are on fire, I feel hot, short of breath. What's wrong with me? What is it that makes me different?"

T: "... what is happening now? What do you see?"

G: "I'm leaving, I can't go where they are sitting. I go back to my classroom, luckily there is not much time to wait, the break won't last for long"

The therapist now stops the imagery exercise to allow Gianluca and the therapist to jointly reflect on the experience and agree the direction of a possible rescripting. They decide that Gianluca will try to rescript the episode acting according to his wish to belong. In order to do so, the first step is to counteract avoidance. The therapist offers to speak as an 'off-stage voice', helping Gianluca to label and regulate his experiences, and offering suggestions as to how to move

towards goal fulfilment whilst still accessing healthy self-representations. Gianluca returns to the imagined memory, his eyes closed. In the rescripting exercise the therapist asks him to approach his schoolmates.

T: "So, Gianluca, do you feel like trying this? What do you say to them?"

G: "Hi guys, what are you doing? Are you having a snack? (His voice is low and tremulous)"

T: "Good. What do you think and feel? How does it feel in your body?"

G: "I feel Ashamed! My hands are sweaty... I can hardly speak, and I can't look at them in the eyes, I feel like I'm blushing".

T: "Ok. Now focus on what they are doing. Are they playing?"

G: "Yes, they are having fun".

T: "How does that feel?"

G: "They are laughing, playing with football cards. I want to join them!".

T: "Very good. So, let's try. Breathe, take your time and approach them... pay attention to your voice, try to put energy in it, raise your chin. Ok?".

G: "Yes, I can try".

During repeated rehearsals, Gianluca became progressively more capable of approaching his friends. With repeated trials his voice became louder, he stands up, raising his shoulders at the suggestion of the therapist. Gianluca notes that the more he adopts these attitudes, the more he feels empowered and strong. When looking at his schoolmates he notes fewer signs of rejection and focuses instead on the observation that they are having a lot of fun.

G: "Hey guys, can I join? I have a new set of cards".

T: "What do you notice? How do you feel now?"

G: "They don't invite me... but... well I'm sitting next them, and they are ok, they leave me to play, one of them talks to me and... well another one asks to see my cards and... we play now".

T: "How do you feel now?"

G: "It's like... I'm one of them... just playing the game..."

The therapist invites Gianluca to explore the bodily components of this experience, and in doing so he develops a stronger awareness of this sense of belonging and playfulness.

In response to the therapist checking in with him, Gianluca says he has experienced a sense of greater confidence, and he thinks he can interact better with others. The therapist finishes the exercise and invites Gianluca to open his eyes, after which they discuss his awareness of his internal state. He is aware of feelings of shame and inferiority, but he now realizes this awareness does not mean that he will inevitably succumb to negative thoughts and feelings, and he can instead access a healthier sense of self as being motivated, possessing self-worth and able to connect. He also remembers a memory of being included in a group and other instances in which others were welcoming towards him.

As an example of a typical sequence within MIT therapy (Dimaggio et al., 2020), the treatment plan continues with *in vivo* behavioral exposure. Therefore, as homework Gianluca will try to counteract avoidance between his weekly sessions,

while also trying to connect with others. In the above vignette he went on to try to do so and was partially successful. He realized that he *was* able to make contact with others, but when he did make these connections socially he was non-assertive and did not speak about very much with his peers. Role-play with the therapist was therefore used in order to model a range of more assertive conversation expressions and approaches, which formed the basis for further *in vivo* exposures. After 12 months in treatment Gianluca reported an improved, more stable sense of belonging and worthiness.

Therapeutic outcome

Therapy proceeded on a weekly basis for 18 months and was then stepped down to one session every three weeks. Gianluca became more aware of his schemas and when they surfaced again he labelled them as his "old habits". With some effort he could take a critical distance from them. "I feel unworthy, but I know it's not really me, it is something I used to think for such a long time, but now I know I'm ok". He reported frequent experiences of group inclusion, starting with his bike group, whom he now frequently tours with. He had not yet established a romantic relationship, but felt confident enough to agree to end therapy, albeit with follow-up reviews every 2 months.

Six months after therapy termination Gianluca's improvements were sustained. His social network was now broader, he was no longer depressed and instead reported feeling energized. At work he felt better able to express his own point of view, with a corresponding decrease in expectations of criticism, social anxiety and shame. He had just started a romantic relationship, which he was positive about, and was considering moving abroad to improve his employment prospects.

Discussion

The core psychological elements of APD include maladaptive interpersonal schemas, poor metacognition and over-reliance on behavioral coping strategies such as avoidance, perfectionism and procrastination. We hypothesized that including these elements in case formulation of patients diagnosed with APD will deliver benefits in the form of improved treatment adherence and outcomes. We illustrated this with a case vignette from the course of a 2-year treatment with MIT. We highlighted how adopting experiential techniques, such as guided imagery and rescripting, body-oriented work, mindfulness, role-play and behavioral experiments, both in-session and in real life could be fundamental to successful treatment. In particular, these techniques help the patient to change maladaptive interpersonal schemas and incorporate more benevolent and positive images of self and others into one's sense of identity.

These elements of formulation, besides ongoing regulation of the therapy relationship (Safran & Muran, 2000) may well have been key to treatment success, however the single case,

non-structured nature of this approach limits generalization. The above case presentation suggests that in order to change, patients with personality disorders, including individuals with APD diagnoses, need to create new experiences which enable them to discover that their core wishes can be met, and that they do not inevitably have to resort to maladaptive coping strategies to protect themselves from the psychic pain of expected or actual responses from significant others. The key mechanisms of change may happen both at the level of the therapeutic relationship (Gazzillo et al., 2019; 2020) or via a wide array of techniques both in-session and between-session (Arntz, 2012a; Greenberg, 2012; Ecker et al., 2012).

Future work, including structured research designs is planned in order to explore whether MIT, as an integrative third-wave cognitive-behavioral approach, has the potential to offer incremental benefits to existing treatments for APD. Therapeutic targets include maximizing treatment adherence, reducing associated distress; increasing the likelihood that individuals with these difficulties can live a richer and more fulfilling social life.

Author Contributions

The authors contributed equally to this manuscript.

Compliance with Ethical Standards

Conflict of interest

The authors declare that they have no competing interests.

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A pilot study on couple relationships and cardiac disease: The role of alexithymia and attachment in the course of myocardial infarction

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Abstract

The aim of this study was to explore the links between alexithymia, romantic attachment in couples and the clinical course of myocardial infarction (MI). Thirty couples in which the male partner had experienced an MI participated. Both partners filled out the 20-item Toronto Alexithymia Scale (TAS-20) and the Experience in Close Relationship-Revised form (ECR-R); in addition, medical data (e.g., blood pressure, cholesterol) pertaining to the male patients were collected from their medical records, six months after the initial data collection point.

Analysis showed significant associations between the psychological characteristics of partners and patients and several medical follow-up outcomes in patients. Specifically, partners' alexithymia levels (total and factor scores) and avoidant attachment scores were related to several health variables in patients, even when partialling out the effects of patients' own psychological attributes. These findings suggest that their partners' ability to recognise and integrate their emotional states may be relevant to patients' disease management. Multidisciplinary treatments, including psychological interventions for couples, could be introduced to encourage the appropriate involvement of partners in patients' post-MI care.

Keywords: myocardial infarction; alexithymia; attachment; couple.

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Introduction

According to recent epidemiological information, cardiovascular disease remains the leading cause of death globally, and 80% of all deaths from cardiovascular disease are caused by heart attacks and strokes (WHO, 2014). It has also been shown that 80% of the risk of developing heart disease relates to lifestyle and psychosocial factors such as diet, smoking, psychological health, stress and relationship distress in couples (Oldenburg et al., 2016; Taylor & Sirois, 2014). From a psychological point of view, it is important to note that heart disease is considered a chronic illness. As such, those who suffer from it must adjust their lives (work, sexual activity, marital role, eating habits and more) to their new health status (Falvo, 2013).

With regard to relational factors linked to cardiac health, romantic relationships can be a protective factor for health, moderating or even eliminating some of the risk elements listed above; alternatively, where conflicts in a relationship exacerbate or promote unhealthy behaviours, they can be a further risk factor. For instance, it is well known that committed couples' relationships are associated with the discouragement of pathogenic behaviour, thereby decreasing members of those couples' vulnerability to heart disease (Thoits, 2011). Conversely, studies have shown significant correlations between loneliness and poor outcomes following a heart attack, such as greater likelihood of a further heart attack, depression, mortality and disability (Lett et al., 2005; Randall et al., 2009). In addition to loneliness, relationships characterised for the most part by negative interactions and conflict have been linked to high blood pressure, high cardiac output and overactivation of the sympathetic nervous system (Smith et al., 2009).

Couple relationships fraught with conflict are therefore considered a risk factor for heart disease. Furthermore, a review of the literature has found that people who have no romantic partner experience more difficulties adapting to chronic illness, including heart disease (Fletcher et al., 2015). The social support offered by a romantic partner thus appears to be an important source of protection; it goes hand-in-hand with better adaptation to illness and better recovery (Randall et al., 2009). Moreover, emotional accessibility and responsiveness in romantic partners is related to low blood pressure and reduced cardiac reactivity (Gottman, 2011).

With regard to individual characteristics that influence romantic relationships and health, alexithymia—which is characterised by impairments in one's ability to identify and express emotions, poor imaginary processes and an externally oriented cognitive style—appears to impede one's ability to grow and maintain close relationships, as well as rendering one more vulnerable to physical and mental disorders (Luminet et al., 2018; Nemiah & Sifneos, 1970; Taylor et al., 1997). Several studies have shown higher alexithymia levels to be associated with lower levels of marital adjustment and satisfaction in partners, and lower dyadic coping in couples (Epözdemir, 2012; Hesse et al., 2015; Untas et al., 2015). The literature also suggests that alexithymia may be associated not only with clinical symptoms but also with prognoses in patients with heart disease. For example, Kenyon and colleagues (1991) found that alexithymia can lead patients with acute myocardial infarction to delay seeking treatment,

presumably because of confusion over their emotions and bodily sensations. Furthermore, Brzezinski and Rybakowski (1993) discovered that individuals with high alexithymia levels had five times more myocardial infarctions over an eight-year period than did individuals with low alexithymia levels. More generally, Tolmunen et al. (2010) found that the risk of death from cardiovascular disease in a sample of middle-aged men rose by 1.2% for each one-point increase in their alexithymia score, leading the researchers to conclude that alexithymia is associated with higher cardiovascular mortality.

A number of studies have shown a link between alexithymia and attachment styles. For example, insecure attachment has been found to be related to difficulty recognising and discussing emotions (Besharat & Shahidi, 2014; Dewitte et al., 2010; Karukivi et al., 2011; Stevens, 2014) and is considered a psychological vulnerability factor in the aetiology of cardiovascular disease (McWilliams & Bailey, 2010; Oladi & Daraghi, 2018). In Balint et al. (2016), insecure attachment predominated in their sample of hypertensive patients, while in non-clinical populations only about half of individuals exhibit such attachment patterns. In Oladi and Dargahi's study (2018) there was a significant difference in attachment styles between coronary artery disease patients and healthy controls, with insecure attachment styles more frequent in the former than in the latter. Finally, Schmidt et al.'s (2002) findings indicated that secure attachment style reduces the risk of heart disease and improves the manner in which cardiovascular disease is dealt with where it does occur.

The overall aim of this pilot study was to explore, in couples where the male partner had experienced a myocardial infarction, possible associations between patients' and partners' alexithymia and attachment levels as well as various medical variables affecting the clinical course of the myocardial infarction measured at a six-month follow-up. Specifically, the first aim was to investigate possible associations between several medical variables and patients' alexithymia and romantic attachment levels. The second aim was to explore possible associations between partners' alexithymia and romantic attachment levels and patients' medical variables, additionally partialling out the effects of patients' alexithymia and romantic attachment dimensions. We hypothesised that higher levels of alexithymia and insecure attachment in both members of the couple would be related to a worse state of health in the patients (e.g., high levels of high-density lipoprotein and triglycerides, high blood pressure, the presence of hypertension), six months on from the myocardial infarction. A further aim was to investigate associations between patients' and partners' alexithymia and romantic attachment levels. We hypothesised a relation between the two members of the couple in terms of the ability to regulate affect and romantic attachment.

Method

Participants and Procedure

Participants were 30 couples: 30 male patients who had experienced a myocardial infarction (MI) (mean age = 54.73

years, SD = 5.11; mean educational level = 11.73 years, SD = 3.55; mean body mass index = 26.96, SD = 3.78; mean weekly alcohol units = 2.60, SD = 3.54; n = 21 smokers; n = 4 diabetic patients; n = 6 patients performing one hour a week of physical exercise); and their corresponding partners (mean age = 55.13 years, SD = 8.63; mean educational level = 12.33 years, SD = 3.40). The inclusion criterion was as follows: a first-time diagnosis of acute MI that resulted in admittance to a cardiology unit. The exclusion criteria were as follows: suffering from other major diseases or severe comorbidities; the presence of dementia; a history of psychiatric illness; being younger than 18 years of age.

The entire sample was recruited from the cardiology department of the San Giovanni Hospital in Rome. The research protocol was implemented by a qualified researcher in collaboration with the cardiologist of the department. Couples were informed of the study during the patients' cardiology visit one month after the MI. The cardiologist screened the patients for eligibility and after their medical visit introduced those eligible and their partners to the researcher responsible for implementing the study protocol. At this point, the researcher described the study protocol in more depth. Those patients who agreed to participate then signed an informed consent form before completing the tests. Both members of the couple completed the same questionnaires for assessing alexithymia and the attachment dimensions. The six-month follow-up data concerning the course of the MI were collected by the cardiologist, in collaboration with the researcher, from the patients' medical records.

The study was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. Ethics approval was granted by the Ethics Committee of the Department of Dynamic and Clinical Psychology of the University of Roma "Sapienza".

Measures

The 20-item Toronto Alexithymia Scale (TAS-20) (Bagby et al., 1994a; 1994b Bressi et al., 1996) is the most widely used self-report questionnaire for assessing the alexithymia construct. It consists of 20 items and is structured around three factors: 1) difficulty identifying feelings (DIF) (e.g., "When I am upset, I don't know if I am sad, frightened, or angry"); 2) difficulty describing feelings (DDF) (e.g., "I find it hard to describe how I feel about people"); 3) externally oriented thinking (EOT) (e.g., "I prefer talking to people about their daily activities rather than their feelings"). Each item is rated on a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). This instrument provides both a total score and a score for each factor, with total scores ranging from 20 to 100; higher scores indicate higher levels of alexithymia. The questionnaire has adequate internal reliability (total score Cronbach's alpha = .75) and test-retest reliability ($r = .83$). A Cronbach's alpha for the score of .79 was obtained in the present study.

The Experiences in Close Relationships-Revised (ECR-R) (Busonera et al., 2014; Fraley et al., 2000) is a 36-item, self-

report questionnaire used to assess romantic attachment dimensions. Each item is rated on a seven-point Likert scale where 1 = "strongly disagree" and 7 = "strongly agree". Higher scores are associated with higher endorsement of the construct. The ECR-R measures individuals on two subscales (each comprising 18 items) of attachment: Avoidance and Anxiety. The Avoidance dimension measures discomfort with closeness to and dependence on others (e.g., "I prefer not to show a partner how I feel deep down"), whereas the Anxiety dimension assesses fear of rejection or abandonment (e.g., "I often worry that my romantic partner doesn't really love me"). The questionnaire has good internal reliability (anxiety: Cronbach's alpha = .90; avoidance: Cronbach's alpha = .89). With the current sample, the ECR-R demonstrated good internal reliability (Anxiety: Cronbach's alpha = .82; Avoidance: Cronbach's alpha = .79).

Medical variables gauging the course and progression of the myocardial infarction were collected from patients' medical records. They included high-density lipoprotein (HDL) levels, low-density lipoprotein (LDL) levels, triglycerides (TRY) levels, blood pressure, heart rate, hypertension, obesity, weight, body mass index (BMI) and diabetes. We also collected information on smoking, alcohol consumption and physical activity.

Statistical Analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences version 24 (SPSS version 24). Data are reported as means and standard deviations for continuous variables and as frequencies for discrete variables. Pearson's correlations analyses were conducted in order to investigate associations between patients' medical variables affecting the course of myocardial infarctions and both patients' and partners' alexithymia and romantic attachment dimension scores. Pearson's correlations analysis was also conducted in order to investigate the relationship between partners' alexithymia and attachment scores and patients' medical outcomes, partialling out the effects of patients' psychological test scores. A $p < .05$ was considered significant. There were no missing data.

Results

Correlations between patients' psychological characteristics and medical variables at six-month follow-up

As shown in Table 1, several significant correlations emerged between patients' alexithymia levels and various medical variables collected at the six-month follow-up. Specifically, TAS-20 total scores were positively related to Maximum Blood Pressure (MMHG MAX; $r = .399$, $p = .020$), while externally oriented thinking scores were positively related to MMHG MAX ($r = .569$, $p = .001$), Minimum Blood Pressure (MMHG MIN; $r = .461$, $p = .010$) and the presence of diabetes ($r = .371$, $p = .044$).

Regarding romantic attachment, significant positive associations were apparent between Anxiety scores and both

frequency of exercise ($r = .451$, $p = .012$) and cardiac frequency ($r = .431$, $p = .017$).

Correlations between partners' psychological characteristics and patients' medical variables at six-month follow-up

Several significant correlations emerged between partners' alexithymia levels and the medical variables of patients at the six-month follow-up (see Table 2). Specifically, TAS-20 total scores in partners were positively related to the presence of obesity ($r = .506$, $p = .004$) and of diabetes ($r = .591$, $p = .001$),

and to body mass index levels (BMI) ($r = .508$, $p = .004$) in patients. Difficulties in Identifying Feelings scores in partners were positively related to the presence of diabetes ($r = .616$, $p = .001$) and low density lipoprotein levels (LDL) ($r = .418$, $p = .021$) in patients. Difficulties in Describing Feelings scores in partners were positively related to MMHG MAX ($r = .485$, $p = .007$), obesity ($r = .384$, $p = .036$), diabetes ($r = .504$, $p = .005$) and BMI levels ($r = .477$, $p = .008$) in patients. And finally, Externally Oriented Thinking scores in partners were positively related to MMHG MIN ($r = .373$, $p = .043$) and the presence of diabetes ($r = .472$, $p = .008$) in patients.

Tab. 1. Correlations between patients' psychological characteristics and medical variables at six-month follow-up

	MMHG Max	MMHG Min	Obesity	Diabetes	BMI	Alcoh Freq	HDL	LDL	TRY	Smoke	Exer Freq	Card Freq
TAS-20 Total	.399*	.338	-.134	.204	-.083	-.026	-.269	-.189	-.115	.142	-.136	.228
TAS-20 DIF	.185	.195	-.165	.014	-.129	-.119	-.304	-.203	-.080	.210	-.004	.096
TAS-20 DDF	.070	.041	-.349	.027	-.231	.046	-.156	-.042	-.131	.178	-.186	.129
TAS-20 EOT	.569**	.461*	.185	.371*	.153	.016	-.126	-.158	-.043	-.060	-.107	.257
ECR-R Anxiety	.150	.105	-.001	.252	.002	-.284	.076	.243	-.077	.054	.451*	.431*
ECR-R Avoidance	-.029	.077	-.119	.223	-.171	.164	.098	.143	-.036	.171	.085	.027

* $p \leq .05$; ** $p \leq .001$

MMHG Max: Maximum Pressure; MMHG Min: Minimum Pressure; BMI: Body Mass Index; Alcoh Freq: Alcohol Frequency; HDL: High-density Lipoprotein; LDL: Low-density Lipoprotein; TRY: Triglycerides; Exer Freq: Frequency of Physical Activity; Card Freq: Cardiac Frequency.

TAS-20: Toronto Alexithymia Scale; DIF: Difficulties Identifying Feelings; DDF: Difficulties Describing Feelings; EOT: Externally Oriented Thinking; ECR-R: Experiences in Close Relationships – Revised.

Tab. 2. Correlations between partners' psychological characteristics and patients' medical variables at six-month follow-up

	MMHG Max	MMHG Min	Obesity	Diabetes	BMI	Alcoh Freq	HDL	LDL	TRY	Smoke	Exer Freq	Card Freq
TAS-20 Total	.300	.316	.506**	.591**	.508**	-.210	-.183	.165	.026	-.022	.053	.130
TAS-20 DIF	.019	.081	.336	.616**	.352	-.072	-.194	.418*	.056	-.018	.102	.308
TAS-20 DDF	.485**	.311	.384*	.504**	.477**	-.096	-.157	.002	-.083	.053	-.106	-.083
TAS-20 EOT	.226	.373*	.472**	.227	.359	-.342	-.066	-.083	.086	-.088	.124	.048
ECR-R Anxiety	.184	.040	-.153	.123	.010	.383*	.148	-.017	-.381*	.305	-.038	.048
ECR-R Avoidance	.301	.296	.040	.434*	.169	.292	.258	.096	-.185	.084	.417*	.139

* $p \leq .05$; ** $p \leq .001$

MMHG Max: Maximum Pressure; MMHG Min: Minimum Pressure; BMI: Body Mass Index; Alcoh Freq: Alcohol Frequency; HDL: High-density Lipoprotein; LDL: Low-density Lipoprotein; TRY: Triglycerides; Exer Freq: Frequency of Physical Activity; Card Freq: Cardiac Frequency.

TAS-20: Toronto Alexithymia Scale; DIF: Difficulties Identifying Feelings; DDF: Difficulties Describing Feelings; EOT: Externally Oriented Thinking; ECR-R: Experiences in Close Relationships – Revised.

Regarding romantic attachment, partners' Anxiety scores were positively related to partners' alcohol consumption frequency ($r = .383$, $p = .037$); and, partners' Avoidance scores were positively related to the presence of diabetes ($r = .434$, $p = .016$) and the frequency of physical activity ($r = .417$, $p = .022$) in patients.

Partial correlations between partners' psychological characteristics and patients' medical variables at six-month follow-up

The above analyses were repeated, controlling respectively for patients' TAS-20 and for ECR-R scores using partial correlations. As shown in Table 3, when patients' TAS-20 total scores were controlled for, the association between partners' alexithymia levels and patients' medical variables at the six-month follow-up showed the following significant correlations: partners' TAS-20 total scores were significantly related to MMHG MAX ($r = .420$, $p = .023$), MMHG MIN ($r = .414$, $p = .026$), obesity ($r = .494$, $p = .007$), diabetes ($r = .657$, $p < .001$) and BMI ($r = .503$, $p = .005$); partners' Difficulty Identifying Feelings scores were significantly related to diabetes ($r = .669$, $p < .001$) and LDL ($r = .401$, $p = .031$); partners' Difficulty Describing Feelings scores were related to MMHG MAX ($r = .500$, $p = .006$), obesity ($r = .397$, $p = .033$), diabetes ($r = .502$, $p = .006$) and BMI ($r = .486$, $p = .008$); and finally, partners' Externally Oriented Thinking scores were positively related to MMHG MAX ($r = .446$, $p = .015$), MMHG MIN ($r = .576$, $p = .001$) and obesity ($r = .459$, $p = .012$), and negatively related to patients frequency of alcohol consumption ($r = -.381$, $p = .041$).

When patients' attachment scores were controlled for, the association between partners' attachment score and patients' medical variables at six-month follow-up showed the following significant correlations: partners' Anxiety scores were negatively related to triglycerides level ($r = -.415$, $p = .028$); and, partners' Avoidance scores were negatively related to the presence of

diabetes ($r = .386$, $p = .043$) and positively related to frequency of exercise ($r = .395$, $p = .038$) (see Table 3).

Correlations between patients' and partners' psychological characteristics

Statistical analyses showed patients' TAS-20 total and Difficulty Describing Feelings scores to be negatively related to partners' TAS-20 Externally Oriented Thinking scores (respectively $r = -.382$, $p = -.037$; $r = -.447$, $p = .013$). Furthermore, patients' Avoidance levels were positively related to partners' Anxiety levels ($r = .430$, $p = .018$).

Discussion and Conclusions

Romantic relationships can protect and foster health through direct (e.g., the calming effects of loving interactions) and indirect (e.g., positive influences on healthy behaviours) pathways. Couple relationships can also play an important role in the management of disease, such as MI, affecting the likelihood of a further heart attack, the presence of psychopathology and death (Thoits, 2011). Alexithymia and attachment dimensions are psychological characteristics related to the ability to grow and maintain close relationships; they also represent two individual vulnerability factors for developing physical and mental disorders (Luminet, 2018; McWilliams & Bailey, 2010; Ravitz et al., 2010; Taylor et al., 1997).

The principal aim of this study was to analyse associations between the psychological characteristics of each partner and the clinical course of myocardial infarction in the patient. As regards patients, we detected significant positive associations between alexithymia—as measured by both total scores and

Tab. 3. Partial correlations between partners' alexithymia levels and patients' medical variables at six-month follow-up, controlled for patients' TAS-20 and ECR-R scores.

		MMHG Max	MMHG Min	Obesity	Diabetes	BMI	Alcoh Freq	HDL	LDL	TRY	Smoke	Exer Freq	Card Freq
	TAS-20 Total	.420*	.414*	.494**	.657**	.503**	-.220	-.249	.133	.004	.006	.028	.183
Controlled for Patients' TAS-20 total scores	TAS-20 DIF	.088	.142	.322	.669**	.345	-.077	-.247	.401*	.039	.004	.083	.357
	TAS-20 DDF	.500**	.306	.397*	.502**	.486**	-.094	-.144	.016	-.076	.043	-.098	-.102
	TAS-20 EOT	.446*	.576**	.459*	.337	.356	-.381*	-.189	-.171	.046	-.037	.079	.151
Controlled for Patients' ECR-R scores	ECR-R Anxiety	.237	.017	-.111	.052	.098	.340	.124	-.068	-.315	.263	-.045	.092
	ECR-R Avoidance	.303	.278	.136	.386*	.217	.329	.237	.035	-.174	.042	.395*	.088

* $p < .05$; ** $p < .001$

MMHG Max: Maximum Pressure; MMHG Min: Minimum Pressure; BMI: Body Mass Index; Alcoh Freq: Alcohol Frequency; HDL: High-density Lipoprotein; LDL: Low-density Lipoprotein; TRY: Triglycerides; Exer Freq: Frequency of Physical Activity; Card Freq: Cardiac Frequency. TAS-20: Toronto Alexithymia Scale; DIF: Difficulties Identifying Feelings; DDF: Difficulties Describing Feelings; EOT: Externally Oriented Thinking; ECR-R: Experiences in Close Relationships – Revised.

externally orientated thinking scores specifically—and systolic pressure, diastolic pressure and diabetes. Thus, in the present study, higher alexithymia levels were associated with a worse quality of health; thereby confirming the role of alexithymia as a vulnerability factor for physical wellbeing too (Chatzi et al., 2009; Korkoliakou et al., 2014; Martínez et al., 2015). Alexithymia is also associated with maladaptive coping strategies (Besharat, 2010; Polloni et al., 2017), making it possible to conclude that alexithymic individuals may face considerable difficulty coping with stressful situations, such as MI and related treatments, further adversely affecting their health. We also detected associations between attachment anxiety and frequency of exercise on the one hand, and between attachment anxiety and cardiac rate on the other, making it difficult to characterise attachment anxiety as either a protective factor or a risk factor.

An interesting finding of the present study concerns the association between partners' psychological characteristics and the medical variables of the patients collected at the six-month follow-up. Here, with specific regard to partners' alexithymia levels, several significant associations emerged: partners' total alexithymia score was strongly related to the presence of obesity, the presence of diabetes and BMI in patients; partners' Difficulty Identifying Feelings score correlated with patients' LDL level and the presence of diabetes; partners' Difficulty Describing Feelings score was associated with the systolic pressure, BMI, presence of obesity and presence of diabetes in patients; and finally, partners' Externally Orientated Thinking was related to patients' diastolic pressure and the presence of obesity.

In the literature there is evidence to support an association between alexithymia and both hypertension and excessive body weight in MI patients (Fernandes et al., 2018; Grabe et al., 2010; Todarello et al., 1995), whereas in this study it was the partners' alexithymia that was strongly correlated with these risk factors. Applying a systemic and circular perspective, we hypothesise that patients who have a poor understanding of their own emotions and the needs of their partner may, in a particularly difficult situation such as post myocardial infarction, use the consumption of food to regulate affectivity (Luminet et al., 2018; Taylor et al., 1999). Furthermore, low attunement of partners to patients' needs may increase stress levels in patients, thus affecting the latter's blood pressure and cardiovascular health.

However, in terms of the relationship between partners' attachment dimensions and patients' medical variables in this study, the results are more difficult to interpret. Partners' fear of rejection and abandonment (anxiety) appeared to be positively related to alcohol use and negatively related to triglycerides levels in patients. These associations may highlight, on the one hand, how partners' anxiety and fear of losing their husband/partner may induce stress in patients emotionally loaded by their partners' fears, thereby causing them to increase their alcohol use; on the other hand, partners' fears may lead to the adoption of healthy eating. As regards partners' discomfort with closeness and dependence on others (avoidance), this appeared to be positively associated with the presence of diabetes and frequency of physical exercise. Both these associations may support the hypothesis of a link

between partners' avoidance dimension and patients' attempts to regulate their emotional states through activity. In fact, we observed partners' attachment dimensions to be generally linked to patients' health-risk behaviours. This appears to be in line with King et al.'s (2012) findings suggesting that being in a satisfying relationship has a positive effect on patient's health, making it possible to hypothesise that both partners' support and emotional support represent elements that motivate patients to adopt a healthy lifestyle.

It is worth noting that correlations between patients' medical variables at six months and partners' psychological features (essentially, alexithymia) were more numerous and stronger than were correlations between the variables and patients' own psychological features. It may be that in a moment of heightened stress or threat, such as following a heart attack, the attitudes of the support figure assume an even greater importance over one's own psychological attributes. It is also interesting to note that correlations between partners' psychological features and patients' biological variables were more numerous and stronger than were correlations between couples' psychological features.

A further objective of the present study was to explore relations between alexithymia and attachment in the two members of the couple. Few noteworthy associations emerged between patients' alexithymia and attachment avoidance levels and partners' attachment anxiety levels. This could serve to consolidate each partner in his or her position, making those positions more solid and less amenable to change, for better or for worse.

The results of the present study must be interpreted in light of some limitations. The first of these concerns the limited size of the sample. In this study, as in many clinical studies, the need to recruit individuals with a serious disease and their partners, and to follow them over time, dictated a limited number of participants. Another limitation arising from the nature of the study is the absence of baseline measures. For example, it would have been interesting to know not just patients' blood pressure levels six months after infarction but also how this differed from baseline levels, i.e., before infarction. A further limitation is the absence of a control group, something that a future study should take into account. Finally, the absence of a global variable for cardiovascular health restricted our ability to investigate the potential predictive effect of couples' psychological dimensions on patients' health. Future studies should therefore consider a specific index of cardiovascular health.

In conclusion, managing their MI imposes new lifestyles and habits on cardiac patients and their loved ones. This has an impact on patients' social relationships, especially couple relationships, which can play an important role during this period. The results of this study showed that the ability of both patients and partners to be in touch with and describe their emotions, and to feel confident in their relationship, may assume a protective role for the health of MI patients. In fact, such skills can foster the uptake of healthy behaviours in patients as well as their ability to manage stress relating to the disease event.

Identifying the variables associated with worsened health over the course of an MI, and implementing specific multidisciplinary interventions for patients and their partners, appears to be crucial for preventing further adverse medical events. In this vein,

according to the findings of the present study, psychological treatment focusing on improving the ability to identify and describe emotions and on adopting useful coping strategies could support those involved in managing feelings associated with the MI condition. Furthermore, in future studies it may be interesting to examine the effect of psychological interventions focusing on alexithymia and romantic attachment dimensions on the course of MI and on the quality of life of the couples involved.

Author Contributions

MDT contributed to all phases of the study; CDM participated in the statistical analysis and in writing and editing the manuscript; AR participated in research design development, results interpretation and writing the manuscript; FB collected data and participated in data scoring; VB participated in data scoring and in editing the manuscript; FD participated in the statistical analysis; PSG participated in research design development and supervised the manuscript; LS participated in research design development, and coordinated and supervised all the research activity.

Compliance with Ethical Standards

Conflict of interest

The authors declare that they have no competing interests.

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Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethics standards of the institutional and national research committee, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Ethics approval for the study was provided by the Department of Dynamic and Clinical Psychology, University of Rome, Sapienza.

Informed Consent

Informed consent was obtained from all individual participants in the study.

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Helicopter Mothers and Helicopter Fathers: Italian Adaptation and Validation of the Helicopter Parenting Instrument

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Abstract

The aim of this study is to validate the Italian version of the *Helicopter Parenting Instrument* (HPI), a self-report instrument that evaluate adolescents' and young adults' perception of parenting behaviors. The term *helicopter parenting* describes a style of child-rearing characterized by parents who are over-involved in every aspect of their children's lives in inappropriate ways, compromising their autonomy. The HPI (maternal and paternal version) was administered to 602 adolescents (356 females), between 14 and 18 years of age ($M_{females} = 16.56$; $SD = 1.43$; $M_{males} = 16.63$; $SD = 1.41$). The factorial analysis confirmed the original one-factor structure for both versions. The two versions of the instrument demonstrated good concurrent and divergent validity and the reliability was high. In general, our participants perceived mothers with higher levels of *helicopter parenting* than fathers, regardless of gender and age of the participants. In conclusion, the instrument demonstrated good psychometric properties, indicating that it may be a valid measure for evaluating parental overparenting in the Italian context.

Keywords: helicopter parenting; adolescence; overparenting; family functioning; well-being.

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Introduction

Helicopter parenting was first introduced by Cline and Fay (1990) to describe parents who are overprotective and excessively involved in their children's life. This construct is generally conceptualized as a form of *overparenting* in which parents apply developmentally inadequate practices to their children and limit their ability to assume autonomy and responsibility (Segrin et al., 2012). *Helicopter parenting* has been operationalized as a constellation of parenting behaviors characterized by high levels of control, over-protection, high involvement, emotional support, and resistance to fostering children's autonomy (Padilla-Walker and Nelson, 2012). Typical helicopter parents tend to constantly communicate with their children, make decisions for them and handle the obstacles that their children may face to protect and prevent them to fail (LeMoyne and Buchanan, 2011; Odenweller et al., 2014; Padilla-Walker and Nelson, 2012; Segrin et al., 2012).

The paradox of *helicoptering parents* is that, despite the parents' genuine intentions to protect and promote their children's development, this parenting style has negative implications on their well-being and socio-emotional adaptation (Odenweller et al., 2014; Segrin et al., 2012). The majority of the research has focused on the effects of *helicopter parenting* on adolescents and young adults (LeMoyne and Buchanan, 2011; Leung and Busiol, 2016). Some studies showed that young adults with *helicopter parents* are more likely to report several negative mental health and behavioral outcomes: anxiety and depression symptoms (LeMoyne and Buchanan, 2011; Luebbe et al., 2018; Padilla-Walker and Nelson, 2012; Perez, 2017; Reed et al., 2016; Schiffrin et al., 2014, 2019; Segrin et al., 2013), ineffective coping strategies to deal with stress (Odenweller et al., 2014; Segrin et al., 2013), decision making styles based on directions from others or avoidance of the responsibility (Luebbe et al., 2018), poor attachment to peers (van Ingen et al., 2015), low academic determination and success (Howard et al., 2019), and use of painkillers, anti-anxiety medications and antidepressants (LeMoyne and Buchanan, 2011).

The self-determination theory (Ryan and Deci, 2000) may provide a theoretical framework for understanding the negative implications of *helicopter parenting* on children's well-being. One of the central assumptions of this theory is that all human beings have innate needs, including (1) need for *autonomy*, that is the need for acting with volition; (2) need for *competence*, that is the need to feel effective in one's abilities; and (3) *relatedness*, that is the need to feel connected with other people. Parents who are excessively involved in the life of their children could reduce their autonomy, their sense of competence, and, consequently, undermine their interpersonal relationships (Deci and Ryan, 2000).

Currently, several measures exist in research for the assessment of *helicopter parenting* in adolescents and young adults. Some scholars conceptualize *helicopter parenting* as a unidimensional construct (LeMoyne and Buchanan, 2011; Odenweller et al., 2014; Padilla-Walker and Nelson, 2012), whereas others suggest a measuring approach based on a multidimensional construct (Schiffrin et al., 2014). Despite the variety of approaches, some theoretical and methodological

limitations need to be acknowledged when interpreting the findings from the *helicopter parenting* research. First, research has mainly focused on *Millennials'* generation (LeMoyne and Buchanan, 2011), i.e. young people born between 1980 and 2000. Little is known about the most recent generations. Second, most studies have investigated *helicopter parenting* in European or North American university students (Ertuna, 2016; Odenweller et al., 2014). This may obscure the cultural variation in *helicopter parenting* across different countries. For example, *helicopter parenting* in Asia is qualitatively different when compared to Western societies. In this cultural context, *helicopter parenting* is considered a usual practice: As an example, it is very common for parents in Asia to take leave on their child examination day or to wait at school until the examination is over (Ganaprakasam et al., 2018). Also, in Turkey where parental authority is considered natural *helicopter parenting* is highly valued (Ertuna, 2016). Third, studies have focused on helicopter mothers neglecting the role of helicopter fathers and related similarities or differences (Ertuna, 2016; Odenweller et al., 2014; Perez, 2019). There is a gap in the research literature on the differential perceptions about both parental figures (Bornstein and Venuti, 2013; Pleck, 2012) and the role of helicopter fathers (Boeddu, 2008; Procentese, 2005; 2008).

The present study was designed to expand the literature on *helicopter parenting* by contributing to the Italian validation of the *Helicopter Parenting Instrument* (HPI, Odenweller, et al., 2014). Moreover, in analyzing the concurrent and divergent validity of the scale, we sought to overcome some crucial limitations in the *helicopter parenting* research by using a sample of a recent generation of adolescents (born after 2000) and assessing both mother and father *helicopter parenting*.

Method

Procedure and Participants

The original HPI was translated into Italian using *back-translation* procedures: First, an Italian-speaking psychologist with expertise on parenting and adolescent well-being translated the survey into Italian. Then, a native English-speaking psychologist back-translated the survey into English. Finally, a group of experts in developmental psychology compared the back-translation with the original questionnaire to identify potential inconsistencies or substantial differences. This phase did not suggest that rewording was needed for any item.

Participants were recruited using snowball sampling by students of the Faculty of Medicine and Psychology, Sapienza University of Rome, for a laboratory activity on parenting and adolescent well-being. Respondents were directed to a 15-20 minute online survey hosted by Unipark. The survey was administered individually after obtaining informed consent from parents and children to protect participants' anonymity. Participation was voluntary and adolescents were informed that they could withdraw from the study at any point and that the decision to stop would be respected. The study was approved by the Ethics Commission of the Department

of Developmental and Social Psychology of the Faculty of Medicine and Psychology, Sapienza University of Rome.

The inclusion criteria included having both a mother and a father, age range between 14 and 18 years old, and Italian nationality. Thirty-three participants were excluded for not meeting the inclusion criteria: three participants had same-sex parents, fifteen had only one parent, eight were older than 18, and seven were not Italian. The resulting sample consisted of 602 Italian adolescents (356 females, 59%), between 14 and 18 years of age ($M_{females} = 16.56$; $SD = 1.43$; $M_{males} = 16.63$; $SD = 1.41$) from South ($n = 148$; 24.6%), Centre ($n = 435$; 72.3%) and North of Italy ($n = 19$; 3.2%). All participants had completed primary and middle school. Finally, regarding socioeconomic status, 248 (41%) adolescents reported a high family income, 332 (55%) a middle family income, and the remaining 22 (4%) a low family income.

To reduce the administration time and to have more accurate data on *helicopter parenting*, two versions of the survey were used. Both versions included socio-demographic questionnaires and the HPI. However, participants assigned to the first version ($n = 284$; 44%) were evaluated on family functioning, perceived social support, and well-being, whereas, in the second version, participants ($n = 318$; 56%) reported on *parental involvement* e *overparenting* in their family.

Measures

Socio-demographic variables. An information questionnaire was administered to collect data about gender, age, geographical location (1 = *northern Italy*; 2 = *central Italy*; 3 = *southern Italy*; 4 = *other*), education, and socioeconomic status (from 1 unstable to 4 *very wealthy*). Finally, participants were asked to identify a parent 1 and a parent 2 and corresponding age. For each of these two categories, possible response options were *mother*, *father*, and *other*. If participants associated *other* to one or both parents, they were asked to write in more information to identify this parental figure.

Helicopter Parenting Instrument (HPI; Odenweller et al., 2014). The HPI is a self-report measure used to investigate adolescents' perceptions of their parents' *helicopter parenting* behaviors (e.g. "My parent tries to make all of my major decisions"). Respondents were asked to indicate their level of agreement with 15 statements on a 7-point Likert scale with 1 representing "strongly disagree" and 7 representing "strongly agree." In the present study, we used two versions of this instrument (see Appendix A and B for more details). One evaluating mother helicopter behaviors and one evaluating father helicopter behaviors. For each version, an average score was calculated with high scores indicating high levels of helicopter parenting behaviors. Reliability and validity information on both versions are reported in the results section.

Family Adaptability and Cohesion Evaluation Scale (FACES-IV; Baiocco et al., 2013; Olson and Gorall, 2006). The FACES-IV is a 42-item self-report measure of family functioning composed of six scales: *cohesion* (e.g. "Family members feel very close to each other"), *flexibility* (e.g. "Our family tries new ways of dealing with problems"), *disengaged* (e.g. "Our family seldom does things together"), *enmeshed* (e.g. "We spend too much time

together"), *rigid* (e.g. "Our family has a rule for almost every possible situation") and *chaotic* (e.g. "Our family feels hectic and disorganized"). Respondents were asked to indicate their level of agreement with each statement on a 5-point Likert scale from *strongly disagree* to *strongly agree*. Cronbach's alpha coefficients were 0.83 for *cohesion*, 0.73 for *flexibility*, 0.72 for *disengagement*, 0.70 for *enmeshed*, 0.69 for *rigid*, and 0.68 for *chaotic*.

Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988). The MSPSS is an 8-item self-report measure assessing social support from *friends* (e.g. "My friends really try to help me") and *significant others* (e.g. "There is a special person who is around when I am in need"). Response options were on a 7-point Likert scale from *strongly disagree* to *strongly agree*. Higher scores indicate high levels of social support. Cronbach's alpha coefficients in the present study were 0.93 for support from friends, and .0.90 for support from significant others.

Well-being Questionnaire – short form (W-BQ12; Pouwer et al., 2000). The W-BQ12 is a 12 item self-report measure investigating general well-being (e.g. "I have lived the kind of life I wanted to"). Respondents rated on a 4-point Likert scale (ranging from 0 = *never* to 3 = *always*) how often in the past few weeks a series of statements could apply to them. Scores were then summed with higher scores indicating a greater level of general well-being (Petrocchi et al., 2020; Riazi et al., 2006; Rochlen et al., 2008). Cronbach's alpha coefficient for the present study was 0.77.

Parental Involvement Scale (PSI; Bradley-Geist and Olson-Buchanan, 2014). The PSI is a 9 item self-report measure used by participants to inquire about the frequency with which their parents initiated involvement with their school (e.g. "How often do your parents/guardians ask you about your grades?") and social life (e.g. "How often do your parents/guardians ask you about your social life?"). In the present study, the youth were asked to separately assess the mother and father's behaviors. Response options were on a 5-point Likert scale ranging from *never* to *all the time*. Cronbach's alpha coefficients in the present study were 0.84 for the mother version and 0.83 for the father version.

Overparenting Scale (OPS; Bradley-Geist and Olson-Buchanan, 2014). The OPS is a 5-item self-report measure assessing whether participants felt that their parents were too involved in their lives and thus engaging in over-parenting (e.g. "I think my parents/guardians are too overly involved in my life"). In the present study, the youth were asked to separately assess maternal and paternal involvement. Items were rated on a 5-points Likers scale ranging from *strongly disagree* to *strongly agree*. Cronbach's alpha coefficients in the present study were 0.87 for the mother version and 0.82 for the father version.

Statistical Analysis

We used the Statistical Package for the Social Sciences (SPSS; 25.0) and Mplus (version 7.3) to conduct all analyses. Exploratory factor analysis (EFA) was conducted to examine the underlying factor structure of the mother and father forms of the HPI. Further, a confirmatory factor analysis (CFA) was performed to determine whether the underlying structure of the HPI, as hypothesized by Odenweller et al. (2104), fit the

data well. To avoid problems of non-convergence, we used item parceling based on item skewness to reduce the number of observed variables. Specifically, parcels were created by averaging the scores of pairs of items that were skewed in different directions. For example, we formed the first parcel by averaging the score of the most negatively skewed with the most positively skewed item, then the next most negatively skewed with the next most positively skewed item, and so on. The use of item parcels is a recommended practice in preparing for CFA (Baiocco et al., 2018; Hau and Marsh, 2004; Little et al., 2002). Given that the mother and father forms of the HPI comprised the same items, in the CFA we allowed the residuals of the identical parcels to covary (e.g., the residuals of parcel 1 in the mother form covaried with the residuals of parcel 1 in the father version).

The following indexes and cut-off criteria were used to evaluate the goodness-of-fit of the different models: Standardized chi-square (χ^2/df) < 3, standardized root mean residual (SRMR) < 0.06, root mean square of approximation (RMSEA) < 0.08, comparative fit index (CFI), Tucker-Lewis Index (TLI) > .95, and the values of the chi-square/degree of freedom (CMIN/df; Tabachnick and Fidell, 1996) ranging from 2 to 5. We used Cronbach's alpha to evaluate internal consistency and Pearson correlations to assess the concurrent and divergent validity of the HPI. Finally, a multivariate analysis of covariance (MANCOVA) was used to test gender differences on the mother and father forms of the HPI using participants' age as a covariate.

Results

Exploratory Factor Analysis

EFA was conducted on the original 15 items of both the mother and father forms of the HPI using principal-axis factor analysis. Item retention was determined by the magnitude of factor loadings and commonality. Specifically, we eliminated any item with a factor loading lower than 0.4 or with commonality lower than 0.30. The initial scree plots suggested that a one-factor model solution would be viable explaining 25% of the variance in the mother form and 26 % in the father form. In each form, 5 items showing factor loading lower than 0.40 were eliminated. Thus, the EFA analyses were replicated on the remaining 10 items confirming a one-factor model accounting for 34% of the variance in the mother form and 35% in the father form (see Table 1).

Confirmatory Factor Analysis

We conducted a CFA to confirm the one-factor structure of the HPI on the remaining 10 items of the father and mother forms. We used parcels because they produce relatively more reliable estimates of latent variables than observed indicators. For both the mother and father forms, we used the following parcels: Parcel 1 (item 1 and 9); parcel 2 (item 3 and 8); parcel 3 (item 5 and 10); parcel 4 (item 4 and 7); and parcel 5 (item 2 and 6). Given that the parcels were identical for

Tab. 1. Exploratory factor analysis of the mother and father HPI (n = 602)

	HPI mother	M (SD)	Correlation Item-Total	HPI father	M (SD)	Correlation Item-Total
4. My parent considers oneself a bad parent when he or she does not step in and "save" me from difficulty	0.65	3.73 (1.87)	0.64**	0.67	3.47 (1.78)	0.65**
7. My parent considers himself or herself a good parent when he or she solves problems for me	0.63	4.37 (1.67)	0.61**	0.63	4.22 (1.67)	0.62**
6. My parent voices his or her opinion about my personal relationships	0.61	4.65 (1.77)	0.60**	0.56	3.93 (1.74)	0.56**
8. My parent insists that I keep him or her informed of my daily activities	0.61	4.94 (1.71)	0.59**	0.56	4.22 (1.75)	0.56**
5. My parent feels like a bad parent when I make poor choices	0.60	3.69 (1.79)	0.60**	0.61	3.51 (1.74)	0.60**
1. My parent tries to make all of my major decisions	0.59	3.30 (1.88)	0.59**	0.56	2.86 (1.69)	0.57**
3. Sometimes my parent invests more time and energy into my projects than I do	0.57	3.57 (1.89)	0.59**	0.57	3.17 (1.81)	0.57**
10. My parent thinks it is his or her job to shield me from adversity	0.56	4.58 (1.82)	0.57**	0.64	4.38 (1.85)	0.63**
2. My parent overreacts when I encounter a negative experience	0.56	4.04 (1.95)	0.57**	0.49	3.68 (1.84)	0.52**
9. When I am going through a difficult situation, my parent always tries to fix it	0.42	5.45 (1.49)	0.43**	0.59	4.93 (1.68)	0.58**
% explained variance	34			35		
Cronbach's alpha	0.78			0.79		

Note. For parsimonious reasons, the items were reported based on maternal factor loadings.

the two forms, the residuals of each parcel in one form were allowed to covary with the residuals of the corresponding parcel in the other form. The analysis showed that the one-factor model presented reasonably high goodness of fit. Although the χ^2 was significant, $\chi^2(29) = 118$, $p < 0.001$, all the goodness-of-fit indices reached acceptable values, $\chi^2/df = 4.06$; CFI = 0.98; TLI = 0.96; SRMR = 0.05; RMSEA = 0.07; (90% CI: 0.05; 0.08). Standardized factor loadings were all significant ($p < 0.001$) and ranged from 0.62 to 0.69 in the mother form and from 0.60 to 0.72 in the father form. Results are shown in Figure 1.

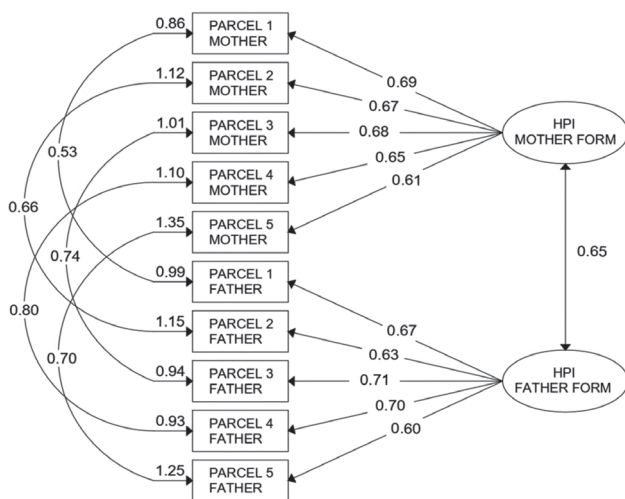


Fig. 1. Confirmatory factor analysis for the mother and father forms of the HPI

Internal Consistency, Concurrent and Divergent Validity of the HPI

The scale reliability estimates were high: The composite reliability was 0.78 for the mother form and 0.79 for the father form. The result of Welch's t -tests indicated that, in the present study, the HPI means on the father, $t(641) = 6.47$, $p < 0.001$, and mother forms, $t(647) = 12.43$, $p < 0.001$, were significantly higher when compared to the normative sample used in Odenweller and colleagues' (2014) study.

To examine the concurrent and divergent validity, Pearson correlations coefficients were computed. As shown in Table 2, bivariate correlations showed a positive and significant correlation between the two HPI scores of the mother and father forms ($r = 0.65$; $p < 0.001$). Overall, the convergent validity of the instrument was supported by significant correlations between HPI scores and theoretically related measure scores. In particular, HPI scores displayed a strong association with the rigid ($r_{mother} = 0.20$, $p < 0.001$; $r_{father} = 0.17$, $p < 0.001$), enmeshed ($r_{mother} = 0.17$, $p < 0.001$), and disengaged subscales of the family functioning ($r_{father} = -0.12$, $p < 0.05$). In addition, both forms were positively related to *parental involvement* ($r_{mother} = 0.30$, $p < 0.001$; $r_{father} = 0.43$, $p < 0.001$), and *overparenting* ($r_{mother} = 0.38$, $p < 0.001$; $r_{father} = 0.29$, $p < 0.001$). Finally, the divergent validity was also supported by the lack of significant associations of the HPI scores of the mother and father forms with well-being and perceived social support.

Gender Differences in Mother and Father Forms of the HPI

A paired t -test revealed a statistically significant difference between the HPI scores of the mother and father forms (see

Tab. 2. Correlations among HPI, family functioning, well-being, and perceived social support

	1	2	3	4	5	6	7	8	9	10	11	12	13	M(SD)
1. HPI mother	1													4.23 (1.04)
2. HPI father	0.65**	1												3.84 (1.03)
3. Rigid	0.20**	0.17**	1											20.55 (4.69)
4. Enmeshed	0.17**	0.09	0.35**	1										16.45 (4.58)
5. Disengaged	-0.04	-0.12*	-0.09	0.03	1									17.46 (4.82)
6. Chaotic	-0.01	-0.04	-0.22**	0.06	0.41**	1								18.35 (4.69)
7. Cohesion	0.02	0.09	0.26**	0.13*	-0.64**	-0.32**	1							27.70 (4.84)
8. Flexibility	-0.05	0.09	0.34**	0.16**	-0.48**	-0.31**	0.74**	1						25.57 (4.66)
9. Support from friends	0.05	0.03	-0.06	-0.13*	-0.03	-0.09	0.09	0.09	1					5.66 (1.23)
10. Support from significant others	0.02	0.04	0.05	-0.04	-0.20**	-0.19**	0.28**	0.29**	0.51**	1				5.84 (1.20)
11. Well-being	0.05	0.06	0.06	-0.02	-0.36**	-0.27**	0.37**	0.33**	0.12*	0.19**	1			26.63 (5.42)
12. Parental involvement	0.30**	0.43**	/	/	/	/	/	/	/	/	/	1		3.33 (0.07)
13. Overparenting	0.38**	0.29**	/	/	/	/	/	/	/	/	/	/	1	2.33 (0.81)

Note. ** $p < .01$, * $p < .05$. The measures of family functioning, well-being and perceived social support were administrated to 284 participants (first version of the survey), while the measures of parental involvement and overparenting to 318 participants (second version of the survey)

Table 2 for mean and standard deviations). In particular, mothers were perceived with higher levels of helicopter parenting than fathers, $t(601) = -11.22$, $p < 0.001$. Then, we conducted a MANCOVA to investigate participants' gender differences on the HPI scores of the mother and father forms adjusting for participants' age. The analysis revealed no significant effects of gender, $Wilks' \Lambda = 0.99$; $F(2,598) = 1.53$; $p = 0.22$, $\eta^2 < 0.01$ and age, $Wilks' \Lambda = 0.99$; $F(2,598) = 2.30$; $p = 0.10$, $\eta^2 < 0.01$, suggesting that mothers were perceived with higher levels of helicopter parenting than fathers regardless of gender and age of the participants. Mean and standard deviations are shown in Table 3.

Discussion and conclusion

In attempting to address the lack of validated helicopter parenting measures in Italy, the present research evaluated the HPI psychometric properties in a sample of Italian adolescents. EFA results supported unidimensional factor structures of both the mother and father forms of the HPI. Consistently with the original version of the HPI (Odenweller et al., 2014), CFA results confirmed a good fit for the unidimensional factor structures of the two HPI forms.

Our results show that Italian adolescents perceive higher levels of helicopter behaviors from their parents compared to the normative sample used for the development of the HPI (Odenweller et al., 2014). One explanation for this difference may be that Italy is known for being a traditional country bound by conservative family values (Mencarini and Solera, 2015). As in other family-oriented cultural contexts, Italian adolescents may be particularly exposed to the negative impact of *helicopter parenting* behaviors (Schiffrin et al., 2014, 2019; Segrin et al., 2012, 2013). Moreover, the original validation study used a sample of young adults (Odenweller et al., 2014). It is conceivable that adolescents tend to be more perceptive of helicopter behaviors given that they are more likely to live with their families and to have very limited autonomy from their parents. Future studies should deepen our understanding of generational and cultural characteristics that could explain this difference.

Similarly to prior evidence (Schiffrin et al., 2019), correlational analyses showed a positive between the two HPI scores of the mother and father forms, suggesting that when one parent is a "helicopter parent", the other parent is likely to act helicopter behaviors as well. However, this result could

also be due to a common method variance bias (Podsakoff et al., 2003) given that mothers and fathers were evaluated by the same informational source, their children.

Taken together, our analyses suggest that HPI scores significantly tap into concerning aspects of helicopter parenting. This is confirmed by the hypothesized associations of helicopter parenting with rigid (for both mother and father forms), enmeshed (for mother form) and disengaged (for father form) family functioning. Essentially, data suggest that excessive parental involvement in their child lives is more likely to be present in a rigid family system, which hinders children's developmental processes of individualization and autonomy (Givertz and Segrin, 2014). In fact, both rigid and helicopter parent styles reflect a deficit in parents' ability to refrain from intervening every time their children face a challenge, even when they are able to autonomously overcome it (Segrin et al., 2012). Similarly, our findings on concurrent validity with *parental involvement* and *overparenting* support the definition of *helicopter parenting* as a form of *overparenting* (Segrin, et al., 2012) or as an excessive and inappropriate parental involvement in the different stages of the child development (LeMoyné and Buchanan, 2011; Padilla-Walker and Nelson, 2012). Also, HPI appears to tap into the two constructs of intrusive or maladaptive parental involvement in the children's social and school life and excessive parental intrusiveness as defined by Bradley-Geist and Olson-Buchanan (2014). Moreover, the HPI forms have yielded scores with divergent validity showing that helicopter parenting is distinct from perceived support by significant figures and general well-being (Table 2).

In line with previous studies (Schiffrin et al., 2019), our results showed that children perceive that mothers display higher levels of *helicopter parenting* behaviors than fathers. However, there was no interaction between parents' and children's gender, even if we considered the age as a covariate. These results suggest that mothers are perceived with higher levels of *helicopter parenting* regardless of gender and age of our participants.

This research had some limitations. First, all of the information concerning participants' experiences and parents' behaviors were obtained through self-report measures administered to youth. Future studies may benefit by integrating the perspectives of children and parents. Second, the study used a sample composed of youth who have a mother and a father which may limit the generalizability of the results to other typologies of families such as single-parent or same-sex parent families. Third, this study was cross-sectional. Longitudinal studies could enrich our understanding of the

Tab. 3. Mean and standard deviations mother and father forms of the HPI based on participants' gender (n = 602)

	HPI mother		HPI father		Gender differences	
	M	SD	M	SD	F mother	F father
Gender						
Female (n = 356)	4.19	1.10	3.77	1.09	1.24	3.07
Male (n = 246)	4.29	0.94	3.93	0.94		

Note. Gender differences were not significant. The effect of the age as covariate was not significant

effect of *helicopter parenting* behaviors at the different children's developmental stages.

In term of practical implications, the use of a *helicopter parenting* measure could be beneficial for developing more comprehensive and effective programs and interventions aimed at promoting family well-being (LeMoyne and Buchanan, 2011; Luebbe et al., 2018; Padilla-Walker and Nelson, 2012; Perez, 2017; Reed et al., 2016; Schiffrin et al., 2019; Segrin et al., 2013). Moreover, we believe that in settings of family therapy or clinical interventions, the HPI could be valuable for assessing and developing training interventions to enhance helicopter parents' abilities to identify the dysfunctional aspects of their parenting style.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed Consent

Informed consent was obtained from all participants included in the study.

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Appendix A

Helicopter Parenting Instrument – Short Version (HPI-S) – English version (Pistella et al., 2020)

Read each of the following statements thinking about your parents (PARENT 1 and PARENT 2).

Please, specify who you will refer to when you answer questions about parent 1 and parent 2.

If you have only one parent, please respond on the parent 1 column specifying who you will refer to.

PARENT 1 ☐mother ☐father ☐other (specify) _____
 PARENT 2 ☐mother ☐father ☐other (specify) _____

1	2	3	4	5	6	7
Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree

My parent . . .

		Parent 1							Parent 2						
1.	... tries to make all of my major decisions	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2.	... overreacts when I encounter a negative experience	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3.	... sometimes invests more time and energy into my projects than I do	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4.	... considers oneself a bad parent when he or she does not step in and “save” me from difficulty	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5.	... feels like a bad parent when I make poor choices	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6.	... voices his or her opinion about my personal relationships	1	2	3	4	5	6	7	1	2	3	4	5	6	7
7.	... considers himself or herself a good parent when he or she solves problems for me	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8.	... insists that I keep him or her informed of my daily activities	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9.	...always tries to fix it, when I am going through a difficult situation	1	2	3	4	5	6	7	1	2	3	4	5	6	7
10.	... thinks it is his or her job to shield me from adversity	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Note. Items should be randomized for presentation in a survey. Total score is computed by averaging item ratings

Appendix B

Helicopter Parenting Instrument – Short version (HPI-S) – Italian version (Pistella et al., 2020)

Leggi ognuna delle seguenti affermazioni pensando ai tuoi genitori (GENITORE 1 e GENITORE 2).
Prima di rispondere, specifica a chi farai riferimento quando risponderai alle domande sul genitore 1 e sul genitore 2.
Se hai un solo genitore, utilizza solo la colonna genitore 1 specificando a chi farai riferimento.

GENITORE 1 ☐mamma ☐papà ☐altro (specifica) _____
GENITORE 2 ☐mamma ☐papà ☐altro (specifica) _____

1	2	3	4	5	6	7
Fortemente in disaccordo	In disaccordo	In parte in disaccordo	Né in accordo né in disaccordo	In parte in accordo	In accordo	Fortemente in accordo

Il mio genitore . . .

	Genitore 1							Genitore 2						
1. ...cerca di prendere tutte le decisioni importanti al posto mio	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. ... ha delle reazioni eccessive quando mi imbatto in un'esperienza negativa	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. ... a volte investe più tempo ed energia di me nei miei progetti	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4. ... si considera un genitore cattivo quando non interviene e mi salva dalle difficoltà	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5. ... si sente un genitore cattivo quando faccio scelte inadeguate	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6. ...esprime sempre il suo giudizio sui miei rapporti personali	1	2	3	4	5	6	7	1	2	3	4	5	6	7
7. ...considera se stesso un buon genitore quando risolve i problemi per me	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8. ... insiste affinché io lo tenga informato delle mie attività quotidiane.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9. ... prova sempre a risolvere il problema quando sto attraversando una situazione difficile	1	2	3	4	5	6	7	1	2	3	4	5	6	7
10. ... pensa che il suo lavoro sia proteggermi dalle difficoltà	1	2	3	4	5	6	7	1	2	3	4	5	6	7

Nota. Gli item dovrebbero essere randomizzati prima della somministrazione. Il punteggio di ciascuna dimensione viene calcolato mediante la media degli item



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The Role of Need for Affect and Need for Cognition in Self-Evaluation

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Abstract

The primary aim of this study was to investigate whether individual differences in affective and cognitive orientation predict the relative importance of warmth-related and competence-related traits in self-evaluation. 99 participants (85 females) completed the Need for Affect and Need for Cognition scales. Later, participants rated the extent to which warmth- and competence-related traits described their own personality. In line with our hypotheses, affective people expressed more positive evaluations of warmth traits and more negative evaluations of cold traits relative to cognitive people, who expressed more positive evaluations of competence traits and more negative evaluations of incompetence traits. This differentiation has implications for self-evaluation processes and individual differences in affective and cognitive orientation.

Keywords: Need for affect; need for cognition; self-evaluation; warmth; competence.

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Introduction

Prominent models of social perception state that information about others can be categorized along two global dimensions, labelled as warmth and competence or communion and agency (for reviews, see Abele & Wojciszke, 2007; Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, & Glick, 2007). According to a functional interpretation of these classes of information (Abele & Wojciszke, 2007; Fiske et al., 2007), when individuals meet a new person they want to know the other's intentions – that is, whether the target represents an opportunity or a threat (*warmth* dimension) – and whether they possess the ability to carry out those aims (*competence* dimension). Research has demonstrated that the relative importance of the warmth and competence dimensions differs across contexts (e.g., Cuddy, Glick, & Beninger, 2011; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005; Kervyn, Yzerbyt, & Judd, 2010; Wojciszke & Abele, 2008). For instance, warmth judgments have been found to be elaborated upon more quickly than competence judgments and have been observed to have a greater impact on evaluations of others (Wojciszke & Abele, 2008). In some circumstances, however, perceptions of competence can be more important than perceptions of warmth (Cuddy et al., 2011). For example, competence can have a stronger effect when people evaluate themselves and closely related others compared with when they evaluate strangers (Abele & Wojciszke, 2007). The relative use of warmth and competence depends also on cultural orientation: a collectivist orientation emphasizes the warmth dimension, whereas an individualist orientation emphasizes the competence dimension (Wojciszke, 1997).

Building upon these studies, Aquino, Haddock, Maio, Wolf, and Alparone (2016) demonstrated that when evaluating other people, the degree to which individuals rely upon warmth-relevant and competence-relevant information is associated with individual differences in the Need for Affect (NFA) and the Need for Cognition (NFC). NFA considers individual differences in the degree to which people approach or avoid situations that induce emotions (Maio & Esses, 2001). People high in NFA are motivated to understand both their own and others' emotions, and they tend to rely upon emotional information in attitude formation (Huskinson & Haddock, 2004). In contrast, NFC considers individual differences in the tendency to engage in, and enjoy, complex activities requiring cognitive effort (Cacioppo & Petty, 1982). People high in NFC are more likely to rely upon information about an object's attributes when evaluating it (Haugtvedt, Petty, & Cacioppo, 1992). In their work, Aquino et al., (2016) showed that the difference in valence ratings between warm and cold traits mediated the effect of NFA on warmth-related attitudes, whereas the difference in valence ratings between competent and incompetent traits mediated the effect of NFC on competence-related attitudes. Put differently, when affective people (i.e., those high in NFA) are asked to select someone to be friend or lover, they will probably select someone they consider to be warm, whereas cognitive people (i.e., those high in NFC) will probably select someone they consider to be competent. These effects have been replicated in a number of studies (see Haddock & Maio, 2019, for a review).

One question that has not been addressed is the extent to which NFA and NFC are linked with individuals' perceptions of their own central traits, which we refer to as the self-evaluation effect. Previous studies have found that people tend to judge others on dimensions that are personally important to themselves (Fong & Markus, 1982; Lewicki, 1984; Markus & Wurf, 1987). As applied to the current context, we reasoned that if affective people rely upon warmth-relevant traits when evaluating others, they should evaluate themselves very highly on warm traits relative to cold traits – accentuating differences on this dimension. Correspondingly, we reasoned that if cognitive people rely upon competence-relevant traits when evaluating others, they should evaluate themselves very highly on competence traits relative to incompetence traits – accentuating differences on this dimension.

The Present Research

In the present study, we investigate whether individual differences in affective and cognitive orientation predict the relative importance of warmth-related and competence-related traits in self-evaluation. In other words, we explored the degree to which NFA and NFC orientation impact the evaluation of warmth- and competence-related traits when people describe themselves. This is important in extending our knowledge about the role of motivational perspectives in evaluative judgements, as well as demonstrating whether the importance of warmth and competence in self-evaluation can vary as a function of individual differences.

We expected NFA to be positively correlated with evaluations of warmth-relevant traits and negatively correlated with evaluations of cold-relevant traits. We further expected a greater divergence in the relative magnitude of these associations for affective individuals relative to cognitive individuals. Similarly, we expected NFC to be positively correlated with evaluations of competence-relevant traits and negatively correlated with evaluations of incompetence-related traits. We further expected a greater divergence in the relative magnitude of these associations for cognitive individuals relative to affective individuals.

Method

The data set (along with a guideline for readers and separate correlations for approach and avoidance dimension of NFA) is available in the Open Science Framework (https://osf.io/mkedf/?view_only=c855d8f414774ef89bfa1ac1062603d).

Power estimation, participants, and design

For our hypotheses regarding the association of affective-cognitive individual orientation (i.e., NFA and NFC) with warmth-related and competence related traits, we expected a medium effect size ($r = .30$, Cohen, 1988). We hypothesized a medium effect size given the results of previous studies

investigating the role of affective and cognitive individual differences in attitude-relevant domains (see Haddock & Maio, 2019). Regarding our hypotheses about greater differentiation in *matching* traits, we expected a larger effect ($r > .40$, Cohen, 1988).

An a priori power analysis was conducted for sample size estimation (using Sample Size Calculator for Multiple Regression, Soper, 2020). We ran the power analyses for the more conservative analysis in the present research (i.e., multiple regressions). With an $\alpha = .025$ and power = .90, the sample size necessary to detect a medium effect size is approximately $n = 103$.

99 students of Chieti-Pescara University (85 females; $M_{age} = 21.15$ years, $SD = 2.50$) completed an online questionnaire. Participants were recruited on a voluntary basis. Before participating in the surveys, all participants provided informed consent. No compensation was provided for participating in the study.

Overview

The study was conducted using Qualtrics. Participants were informed that the study involved expressing their views about personality traits. In the first part of the study, participants were informed that participation was voluntary, and that data were collected anonymously and used for research purposes only. The first section of the questionnaire aimed to assess demographic characteristics (i.e., age and gender). Then, participants completed the NFA and NFC scales. Later, the participants rated the extent to which warmth- and competence-related traits described their own personality. The order of NFA and NFC was counterbalanced. Finally, participants were debriefed.

NFA and NFC.

NFA was assessed with the short version of the NFA Scale (Appel, Gnambs, & Maio, 2012). This measure comprises 10 items, five assessing the approach dimension (e.g., “I think that it is important to explore my feelings”), the others assessing the avoidance dimension (e.g., “I would prefer not to experience either the lows or highs of emotion”). Participants responded using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). We selected the 10 items from the Italian version of the NFA Scale (Leone & Presaghi, 2007). Given the positive correlation between the approach and avoidance dimensions, $r(99) = .34$, $p < .001$, we computed the total score of NFA by reverse scoring the avoidance dimension items ($\alpha = .73$; see also Aquino et al., 2020).

NFC was assessed using the Italian version of Cacioppo, Petty and Kao’s (1984) 18-item measure (Aquino, Picconi, & Alparone, 2018). Participants rated the extent to which they agreed with items such as “I really enjoy a task that involves coming up with new solutions to problem” and “Thinking is not my idea of fun” (reverse scored). Participants responded to these statements on a seven-point scale from 1 (extremely uncharacteristic of me) to 7 (extremely characteristic of me). The measure showed high reliability ($\alpha = .86$).

Personal trait evaluations

The assessment of participants’ perceptions of the valence of interpersonal traits was done in two ways. In one task, participants rated the extent to which each of 40 traits was negative or positive in describing themselves (“*In this task, please evaluate how positive or negative each of the following attributes is in the description of yourself*”). Participants used a seven-point scale from 1 (very negative) to 7 (very positive). There were 10 warmth-related traits (e.g., sociable; $\alpha = .70$), 10 cold-related traits (e.g., cold, $\alpha = .69$), 10 competence-related traits (e.g., intelligent, $\alpha = .80$), and 10 incompetence-related traits (e.g., unintelligent, $\alpha = .69$). We used the same traits already used by Aquino et al. (2016, Study 1 and Study 3).¹

Results

Preliminary analyses

Preliminary analyses were performed to assess the distribution of variables. Inspection of skewness and kurtosis indicated that departures from normality were not severe (the indices were between $-.94$ and 1.90). Descriptive statistics are reported in the upper section of Table 1. Tests to examine whether the data met the assumption of collinearity indicated that multicollinearity was not a concern (NFA, Tolerance = .99, VIF = 1.01; NFC, Tolerance = .99, VIF = 1.01).

Correlations

As expected, NFA and NFC were not significantly correlated, $r(99) = -.03$, $p = .78$, 95% CI: = $[-.25, .22]$, confirming their mutual independence (see Haddock & Maio, 2019). As hypothesized, participants who rated the warm traits more positively also rated the cold traits more negatively, $r(60) = -.56$, $p < .001$, 95% CI: = $[-.71, -.38]$. Similarly, participants who rated the competent traits more positively also rated the incompetent traits more negatively, $r(60) = -.39$, $p < .001$, 95% CI: = $[-.55, -.19]$.

Table 1 shows correlations among NFA, NFC, the average valence ratings of the warm, cold, competent, and incompetent attributes, the difference in evaluations of warmth versus cold ratings and the difference in evaluations of competence minus incompetence ratings. NFA scores were positively correlated with ratings of warm traits, $r(99) = .26$, $p = .008$, 95% CI: = $[.10, .41]$, and negatively correlated with ratings of cold traits, $r(99) = -.35$, $p < .001$, 95% CI $[-.51, -.16]$. Furthermore, NFA

¹ For exploratory purposes, we also asked participants to rank twenty traits on the basis of the extent to which they were effective in the description of themselves. The traits included five warmth-related traits, five cold-related traits, five competence-related traits, and five incompetence-related traits. The traits used in this task were selected to be representative of those used in the rating task, while the smaller number enabled participants to rank the traits with greater ease. The subset of traits was selected in random way from the set of total traits. This measure revealed nonsignificant trends in the same direction as for the ratings task.

was positively correlated with the difference in evaluation of warm and cold traits, $r(99) = .35, p < .001$, 95% CI [.18, .51], supporting the hypothesis that affective people accentuated the difference in the evaluation of warm versus cold traits. These results are consistent with our hypotheses. NFA scores were not related to the valence ratings of competent traits, $r(99) = .17, p = .09$, 95% CI [-0.03, .37]. However, there was an unexpected negative correlation between NFA and valence ratings of the incompetent traits, $r(99) = -.32, p = .001$, 95% CI [-.53, -.07], as well as a correlation between NFA and the difference in evaluations of competent and incompetent traits, $r(99) = .28, p = .004$, 95% CI [.03, .51].

Next, we directly compared the NFA-warm correlation coefficient and the NFA-cold correlation coefficient, through Steiger's Z test (Steiger, 1980; Weaver & Wuensch, 2013). As expected, these correlations were significantly different, Steiger's $Z = 4.28, p < .001$. We also conducted comparisons between the dissociated links (i.e., NFA-warm versus NFC-warm, NFA-cold versus NFC-cold). In line with our hypotheses, the NFA-warm and NFC-warm correlations were significantly different, Steiger's $Z = 2.99, p < .001$; as were the NFA-cold and NFC-cold correlations, Steiger's $Z = -3.51, p < .001$.

A complementary pattern of effects was found regarding the correlations between NFC scores and attribute evaluations. As predicted, NFC scores were positively correlated with ratings of competent traits, $r(99) = .32, p = .001$, 95% CI [.08, .51]. NFC was not associated with the ratings of incompetent traits, $r(99) = -.17, p = .09$, 95% CI [-.35, .00], although the trend was in the predicted direction. As expected, NFC scores were not significantly related to the ratings of warm, $r(99) = -.17, p = .09$, 95% CI [-.36, .02], or cold traits, $r(99) = .15, p =$

.14, 95% CI [-.02, .33], and the difference in ratings of warm versus cold traits, $r(99) = -.18, p = .08$, 95% CI [-.37, .01].

Next, we directly compared the NFC-competence correlation coefficient and the NFC-incompetence correlation coefficient. As expected, these correlations were significantly different, Steiger's $Z = 3.43; p < .001$. We also conducted comparisons of between the dissociated links (i.e., NFC-competence versus NFA-competence, NFC-incompetence versus NFA-incompetence), these differences were not significant, Steiger's Z (competent) = -1.10; $p > 1$; Steiger's Z (incompetent) = 1.10, $p > 1$. These results were not surprising, given that previous studies showed that the magnitude of differences are typically accentuated for warmth compared with competence (see Haddock & Maio, 2019).

Regression analyses

Next, we conducted regression analyses with NFA and NFC scores as predictors and the average ratings of the warm, cold, competent, and incompetent attributes. Furthermore, we also regressed NFA and NFC scores on the difference in evaluations of warm versus cold traits and the difference in evaluations of competence versus incompetence traits. Regarding warm traits, only NFA scores predicted participants' evaluations, $\beta = .26, t(96) = 2.69, p = .009$, 95% CI [.05, .38], such that higher NFA scores predicted positive evaluations of the warm traits. Similarly, only NFA scores predicted participants' evaluations of the cold traits, $\beta = -.34, t(96) = -3.65, p < .001$, 95% CI [-.52, -.15], such that higher NFA scores predicted negative evaluations of the cold traits. Furthermore, only NFA scores predicted the difference in participants' evaluations of warm

Tab. 1. Descriptive statistics and zero-order correlations for NFA, NFC, and attribute evaluations in the self-perception

	Mean	SD	Kurtosis	Skewness	1.	2.	3.	4.	5.	6.	7.	8.
1.NFA	5.31	.79	.37	-.54	-							
2.NFC	4.82	.77	1.66	.71	-.02	-						
3.Warm traits	5.30	.67	.15	-.54	.26*	-.17	-					
4.Cold traits	2.83	.77	1.50	.83	-.35***	.15	-.56***	-				
5.Competence traits	5.28	.78	-.86	-.01	.17	.32**	.54***	-.25*	-			
6. Incompetence traits	2.38	.68	.89	.82	-.32***	-.17	-.27**	.50***	-.39***	-		
7. Difference warm-cold	2.47	1.28	1.90	.05	.35***	-.17	.87***	-.91***	.43***	-.45***	-	
8. Difference competence-incompetence	2.90	1.22	-.94	.24	.28**	.30**	.50***	-.44***	.86***	-.81***	.53***	-

Note: * $p < .01$, ** $p < .01$, *** $p < .001$

versus cold traits, $\beta = .55$, $t(96) = 3.69$, $p < .001$, 95% CI [.24,.91].

Analyses of the competence dimension revealed a complementary set of results. As expected, NFC scores predicted participants' evaluations of the competent traits, $\beta = .32$, $t(96) = 3.42$, $p = .001$, 95% CI [.14,.51], such that higher NFC scores predicted positive evaluations of competent traits. Regarding evaluations of the incompetent traits, the effect of NFC on this dimension was only marginal, $\beta = -.18$, $t(96) = -1.89$, $p = .06$, 95% CI [-.32,.01]. Further, NFC predicted the difference in participants' evaluations of competent versus incompetent traits $\beta = .31$, $t(96) = 3.31$, $p < .001$, 95% CI [.12,.80]. There also emerged an unexpected effect of NFA on the evaluation of incompetence traits, $\beta = -.33$, $t(96) = -3.44$, $p = .001$, 95% CI [-.44, -.12], as well as on the difference in competence versus incompetence traits, $\beta = .29$, $t(96) = 3.18$, $p = .002$, 95% CI [.11, .83].

Discussion

The primary aim of this study was to investigate whether individual differences in affective and cognitive orientation predict the relative importance of warmth-related and competence-related traits in self-evaluation. In line with our hypotheses, NFA was associated with the positive evaluation of warm traits in the self and the negative evaluation of cold traits in the self. In contrast, NFC was associated with the positive evaluation of competent traits and the negative evaluation of the incompetent traits, though the latter effect was marginally significant. Furthermore, in line with our hypotheses, affective people accentuated differences in evaluations of warm versus cold traits, whereas cognitive people accentuated differences in evaluations of competence versus incompetence traits. Taken together, these findings suggest that affective people show greater differentiation among warmth-related traits, whereas people with a cognitive orientation show greater differentiation among competence-related traits.

NFC did not predict self-evaluations on the warmth dimension. Although NFA also exhibited an unexpected association with evaluations of incompetence traits, Aquino et al. (2016) found that NFA was negatively correlated with evaluations of incompetent traits in others. Future research studies can assess this in greater detail. One possibility is that traits such as unintelligent, foolish, stupid might elicit strong negative affect among high NFA individuals and elicit very strong negative reactions.

Taken together, the present findings extend our knowledge about both attitude and self-evaluation processes. From an attitudinal perspective, the current findings showed a novel outcome that is predicted by NFA and NFC. Thus, these findings add new insights regarding the role of motivational perspectives in evaluative judgements. From a self-evaluation perspective, the results highlight that evaluations of warmth and competence in self-descriptions are related to individual differences in motivations related to seeking out affective and cognitive information. This means, for example, that

warmth traits are not necessarily judged more favorably than competence traits, but that evaluations vary as a function of individual differences in affective and cognitive preferences. The present research showed that what is important in self-evaluation is whether there is self-knowledge regarding our own perceptions of our motivations relating to affective and cognitive information. This pattern fits extant theory indicating that the need to feel validated and understood have a crucial role in interpersonal evaluation and could be very important also in self-presentation (e.g., Reis & Patrick, 1996). Thus, the findings build on prior research showing that perceptions of traits in interpersonal perception are associated with perceptions follow the traits appreciated in the self-evaluation by extending this line of research (Lewicki, 1984; Markus & Wurf, 1987). Our findings contribute to better understanding a recurring issue in social psychology: the role played by individual differences in perceptions of the self.

We wish to acknowledge potential limitations of our results. Most of our participants were female, raising the possible question that our results may be gender specific. This is ultimately an empirical question, but abundant literature on affective-cognitive orientation has shown that participant's gender does not impact the role of affective and cognitive individual differences in attitudinal processes (see Haddock & Maio, 2019, for a review). We should also note that the present study detected only a medium effect size ($r < .40$). However, a recent review of studies based on 708 meta-analytically derived correlations, reported that the 25th, 50th, and 75th percentiles corresponded to correlations of 0.11, 0.19, and 0.29, respectively. Fewer than 3% of correlations met Cohen's definition of "large". Gignac and Szodorai (2016) suggest that the terms small, medium and large closely correspond to correlations of 0.10, 0.20 and 0.30.

The present findings raise additional questions for future research. For example, one research idea could move toward the self-esteem direction by looking at bases of self-esteem and their relationship with affective-cognitive orientation. Another possibility is to look at the comparative aspects of basking vs birging in the warmth vs competence of others. We could also investigate narrative aspects, asking participants to describe the most important event of their life. We could expect that high NFA participants should use more affective words in their story, whereas high NFC participants should use more cognitive words. Indirect evidences for the role of NFA and NFC in the narrative style have already provided (Appel & Richter, 2010).

Author Contributions

The authors contributed equally to this manuscript.

Compliance with Ethical Standards

Conflict of interest

The authors declare that they have no competing interests.

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Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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